

# The Commercial Car Journal

VOLUME XXVIII

PHILADELPHIA, JANUARY 15, 1925

NUMBER 5

*When You Put Through*

## A Sale Without a Profit *for Yourself*

### DO YOU CALL IT A SALE?

**D**O you prefer to make five hundred dollars profit on each sale or is it better to make this profit as a result of six sales? Such a question, on the face of it, seems absurd. But is it really so ludicrous? Consider. With quite 70 per cent of our dealers today the sale's the thing. As long as trucks are being sold business is being done. Why worry.

The average life of the smaller dealer, for the past year or two, has averaged something under twelve months. Why? Because they have let the bigger capitalized firms set the pace for them. In the race for sales they have thrown overboard discounts with reckless ardor, and paid fabulous prices for useless junk.

Every trade-in means two sales before the profits, if any, can be determined. It costs pretty near as much to sell a used truck as a new one and there is usually very little to be made out of the service to the old truck afterwards. Yet how often is that taken into account? Because the trade-in vehicle eventually brings what was allowed for it, the deal is called an even break. What about the overhead, the storage, the salesman's time and commission, the cost of the demonstration? No wonder the dealers go out of business. If they but knew it they have never been in business.

#### Too Much Credit

Look what happened in the buggy-building business a score of years ago. The backbone of the business was the small manufacturer turning

out 2,000 to 5,000 buggies a year. The bigger manufacturers got together and decided to put the small men out of business. The first item on their program consisted of selling their products on time payments. In the beginning they offered 30 days, but this did not seem to have any notable effect on the trade so they increased it to sixty and again to ninety days. To make a long story short, they succeeded in capturing the credit business for themselves, leaving the cash trade for their opponents. Finally in a very short time it was the bigger manufacturers who had gone to the wall, **killed by their own weapon—poor selection of credit risks.**

No man would permit his competitor to come in and run his business for him, so why let competition drive him into unsound business methods that can have but one ending? Sound business methods firmly adhered to always paid and always will pay, always providing that there is a market for one's products. As far as the truck industry is concerned demand was never better. The business is there to be done, and there is business enough for everybody without the adoption of cut-throat tactics. Those who permit themselves to be coerced into uneconomic measures in order to maintain some arbitrary turnover, will find, sooner or later, that such measures can have but one end—disaster.

If one is to be scared into suicidal methods by the "wild-cat" selling operations of other concerns, one might far better close down business right away and get out while the getting's good. So much for what not to do.

### There is No Other Way

That motor truck selling is a profitable business for the smaller dealer if properly conducted, there is not the shadow of a doubt. Dealers who have been at the business a decade and over, and are still keeping their end up (and there are plenty of them) can testify to that.

But it means sticking to sound business methods, and in this the smaller firms have equal chance with the larger.

It means sticking to the legitimate profits.

It means confining your time payments within reasonable limits.

It means careful selection of your hire purchase creditors.

It means common sense allowances on trade-ins.

Cash in the bank instead of in the pocket of some fly-by-night operator can very well be used in cultivating this type of business. In other words, **conserve your capital for the normal demands of your business instead of loaning it out at 6 per cent to anyone who fancies there is easy money in the truck operating game**, and who in many cases constitutes nothing more than another bad debt.

It is not of course suggested that all purchase on terms is to be discouraged. Some of this busi-

ness is inevitable but it must be emphasized that considerable discrimination in its application is called for, and the longer the term asked for the more dubious the prospect. The question that should be asked before a deal is made is not "Can I get this business by hook or crook"? but "is this business worth while when I've got it"?

### Every Deal a Profit

Everyone knows how it goes against the grain to pass up business, but it must also be remembered that much of the business being done today is far too one-sided to be called business. The only man who gets anything out of it is the purchaser, but if the dealer knows his job even the buyer does not come off scot-free.

The prospect who is at heart a business man will soon figure up what the accommodation of time payment costs him in interest and extra insurances, and free himself of those obligations as soon as possible. At any rate it is worth the salesman's while to point this out to him.

The coming year promises very well indeed for the truck selling business, and those who do not get their share of it will only have themselves to blame. The only way however to insure success is to see that every deal carries its own legitimate and proper profit, even at the cost of fewer sales.

*Whereas:* Motor Truck Selling is a Profitable Business.

*Resolved:* That sound business methods will be religiously adhered to.

That the making of a legitimate profit is the purpose of business.

That time payments will be confined within reasonable limits.

That, above all, common sense allowance on trade-ins will be rigidly abided by.

**A Real 1925 Resolution Suggested for Any Dealer Who Thinks That He May Need It**

# More Roads Mean More Business

## Expansion of Highway Program Helps the Dealer by Extending the Use of the Truck and Cheapening the Cost of Operation

By H. LIONEL WILLIAMS

**W**HAT the Highway Engineers of the country are doing to promote the use of motor transportation was made clear at the recent convention of the American Road Builders' Association, at Chicago.

Every truck that travels over an improved road costs from one to four cents a mile more than it would on a hard-surfaced highway. The cost of the highway is but a fraction of the money its use saves the operator. Therefore the dealer located in a district where good roads are the exception rather than the rule has a harder row to hoe than his more fortunate brethren.

Unimproved roads are however decreasing because it is becoming more generally realized by the transport user, both automobile and truck, that it pays to have good roads. The gasoline tax which is acknowledged to be one of the most equitable means of raising funds for the building and maintenance of roads, is becoming universal in this country. At the present time there are only ten states that have not adopted the gasoline tax. These are New York, Massachusetts, Ohio, Michigan, Illinois, Wisconsin, Iowa, Minnesota, Kansas, and Nebraska. The remaining states collect taxes of one to four cents per gallon.

As one of the speakers, Thos. H. MacDonald, Chief of the Public Roads Bureau, explained, the first duty of the Highway Engineer is to make possible the general flow of traffic throughout the country. This accomplished they can begin to develop the local areas more intensively. This is the plan now being followed, with the expectation that the initial system of roads will be complete in about ten years' time. The more intensified system, it is anticipated, will occupy another fifteen years. The fact that a road is classed as "improved," he pointed out, is no indication that it is in a condition to handle the requisite amount of traffic. In practically every case an artificial restriction is placed upon the carrying capacity of the road, reducing its efficiency to about one-fourth. One cross road will often cut down the carrying capacity fifty per cent. The ideal condition exists where a free flow of traffic is possible at all times without interruption.

### Traffic Analysis

It is of fundamental importance to know what we are building the roads for, pointed out W. H. Connell, of the Pennsylvania Highways Dept. The purpose

of highways surveys is to determine the future needs of highway traffic. Changes in industries and populations are indicated by present trends, and traffic tendencies as revealed by periodic censuses indicate future probable demands.

Where this planning is not carried out, economic waste results, as has happened so often in cities where allowances had not been made for future development.

A uniform type and size of road would increase economic waste because the highway would be too large for some and too small for other traffic demands.

Such surveys are now becoming universal. One of the facts that has been discovered is that very heavy traffic occurs only near large centers of population, also, contrary to popular impression, the proportion of through to local traffic is very small.

In Pennsylvania, for instance, 92 per cent of the traffic is local and 8 per cent through or interstate, while 30 to 40 per cent of the passenger car traffic is being utilized for business purposes.

Tests have also shown that trucks form only ten per cent of the total traffic by volume, while trucks of a gross weight exceeding 18,000 lb. form only 9 per cent of the truck traffic, those of 24,000 lb. gross weight and over constituting but one per cent of the total.

### Scope Varies According to District

All roads of equal size are not necessarily equally important. Further, conditions on the same highway may vary considerably according to the locality, as witness the stretch of the Lincolnway passing through Pennsylvania. The average traffic flow on this highway near Philadelphia (pop. 2 millions), is 6,852 vehicles of which 778 are trucks. Of these trucks, 86 represent loads of 21,000 lb. or over. Near York (pop. 47,512), 90 miles away on the same highway, the average daily traffic is only 3,042 vehicles, of which 466 are trucks, with 19 of the trucks weighing 21,000 lb. or over.

Then compare the Lincolnway with the Roosevelt Highway, also in Pennsylvania. There is 83 more miles of the Roosevelt Highway, but the population within the ten miles bordering it is only 650,000 as compared with 4½ millions bordering the Lincolnway. This shows how the characteristics of even national highways can differ.

An even more striking comparison is offered by the differences on the Lincolnway between Philadelphia and Coatesville,

and on the Lakes-to-the-Sea Highway between Erie and Meadville. On the Lincolnway the average truck traffic is 270 vehicles per day, while the Lakes-to-the-Sea Highway is only called upon to carry an average of 71 trucks a day. The difference in the quality of this traffic is shown by the table:

	Lincolnway	Lakes Highway
Under 6,000 lb. ....	99	22
6—12,000 lb. ....	73	17
12—18,000 lb. ....	49	11
Over 24,000 lb. ....	22	10

### Development of Motor Transport

Professor Arthur H. Blanchard, of the University of Michigan, was very optimistic about the bus situation. From the present congestion of streets in the business districts, and the tendency for this to become more pronounced as time passes, he argues that eventually automobiles will not be allowed to park on the city streets. This will open the way for a service of de luxe buses operating from the residential districts and over the city streets. This would obviously reduce congestion and increase the efficiency of the business vehicles operating in the city area.

During the next ten years, he forecasts the fuller economic utilization of highway transport by electric and steam railroads. Railroad officials, he averred, are just beginning to recognize the advantages of motor transport.

One speaker went even further than this in suggesting that within 25 years all highways of any size will have over-and-under crossings doing away with grade crossings, and that commuting from suburbs to cities will then be almost entirely by motor bus.

At the present time 168 electric railways use buses, 33 railways use short-haul trucks, and 9 use motor vehicles for terminal transfer. All these are due for great expansion. Railroad officials have stated that no more electric branch lines will be constructed, while 174 railroads are already using gasoline rail motor coaches on branch lines.

The immediate highway programs are opening up rural districts at a rapid rate. The farmer is no longer content with a main highway a mile from his door. He must have a hard surface from his gate to his market, and as his wish is fulfilled so will he come to realize to the full the benefits and advantages of motorized transportation.



# Special Truck Week Boosts Business

*Six Different Types of Commercial Bodies Were Shown. Show Effort More Than Paid for Itself*

**F**OUR trucks sold off the floor and inquiries enough to keep their four salesmen busy for several weeks were the satisfactory results secured from a special truck sales week, by a suburban firm of automobile dealers, in a district of about 60,000 inhabitants. They are still cashing in on it.

As a method of uncovering prospects, Caley Bros., of Roseland, Chicago, the local Chevrolet dealers, consider the special truck show without equal. So much so that they have decided to make it an annual event.

Although they have sold trucks alongside automobiles for a number of years, the special truck show which they held at the beginning of November was their first attempt at establishing themselves publicly as real truck dealers, providing ade-

quate truck service. The fact that they sell automobiles as well is apt to give the impression that trucks are merely a side line. The Show corrected this impression very effectively.

## Organizing the Show

For the Show week all the passenger cars were cleared out of the showroom, and six different types of commercial vehicles staged, all on the Chevrolet chassis. In addition to H. G. and W. C. Caley, the partners, each of the outside salesmen was given a day inside.

A few days previous to the opening of the Show, 12,000 circular letters of invitation were sent out, and these were backed up by a quarter page advertisement in the two local weekly newspapers. Everything was not plain sailing however. No

sooner was the Show opened than workmen began excavating the street in front of the premises, preventing prospects from getting any nearer than a couple of blocks with their cars. However, Caley Bros. profited from this misfortune by selling a dump truck to the excavating contractor.

If further evidence were needed that circularizing pays, the Show provided it. Normally Caley Bros. send out 2000 circulars a week, and they are very satisfied with the response. The fall they consider is the logical time to concentrate on truck sales, and the Show introduces the change-over admirably. They have at all times, however, a truck on the floor.

Close track is kept of all sales by means of a map on which each sale is recorded by means of a colored

**Speedy Deliveries**  
for Economical Transportation  
**CHEVROLET**

**ECONOMY GROCERY**

**You Are Invited To Attend  
OUR FIRST  
MOTOR TRUCK  
SHOW**

**Oct. 27th to Nov. 1st, Inclusive**  
8 A.M. to 9 P.M.

**AT OUR SHOW ROOMS  
10638-40 Michigan Avenue  
CALEY BROTHERS**  
Pullman 7318-7319

HARRY G. CALEY  
PULLMAN 7318-7319  
for Economical Transportation  
**CHEVROLET**  
SALES • SERVICE • PARTS • ACCESSORIES  
**CALEY BROTHERS**  
AUTHORIZED DEALERS  
10638-40 MICHIGAN AVENUE  
ROSELAND  
CHICAGO, ILL.

**COME TO OUR  
TRUCK SHOW**  
OCT. 27<sup>TH</sup> TO NOV. 1<sup>ST</sup>  
AT  
10638-40 MICHIGAN AVE.

OPEN FROM  
8 O'CLOCK IN THE MORNING  
UNTIL  
9 O'CLOCK IN THE EVENING

The ever increasing demand for the Chevrolet Trucks in this Community warrants us to show a complete line. Therefore, starting October 27th, to November 1st, for one week only we will devote our entire Show room to the displaying of Trucks and Truck Bodies. It will be a splendid opportunity for you to look at any type of Chassis or Body you might be interested in.

Please accept this as your invitation to come.

Yours very truly,  
CALEY BROTHERS

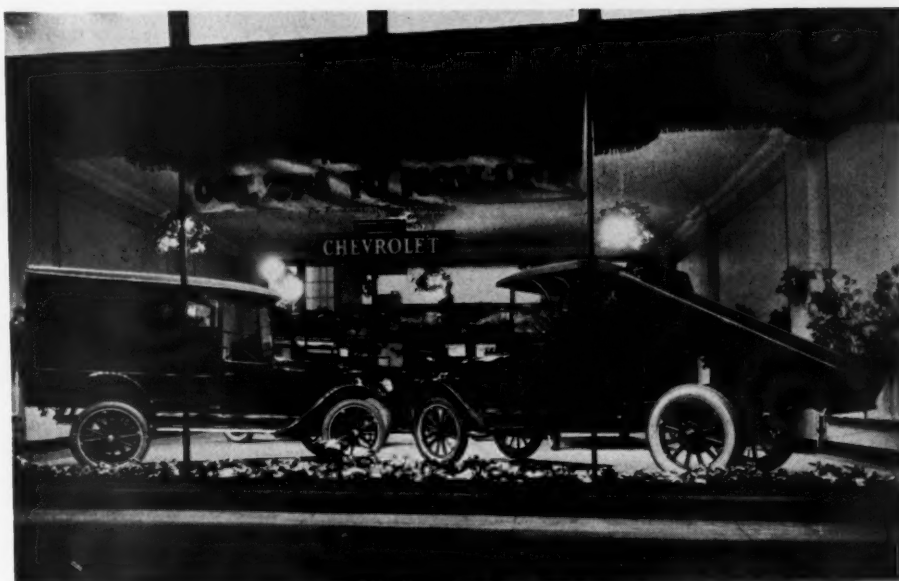
How the Show Was Announced



pin. A glance at this map shows the distribution of the sales, blank areas suggesting the need for extra effort on the part of the salesmen.

Unlike a good many passenger car and truck dealers, H. G. Caley does not believe in peddling trucks. He believes in selling transportation. As a commercial vehicle expert himself, he makes it his business to investigate the problems of new prospects before endeavoring to sell them a truck. That is why their customers stay sold on Caley Bros. as well as on the trucks that Caley Bros. sell.

**This Shows What an Affective Display Can be Made With Trucks and a Little Foliage.**



## Gramm & Kincaid Sponsor New Motor Truck Company

**G**RAMM & KINCAID Motors, Inc., of Lima, Ohio, is the name of the new motor truck company just organized by Mr. B. A. Gramm, who has resigned the vice-presidency of the Gramm-Bernstein Motor Truck Co., and Mr. R. M. Kincaid, who resigned as vice-president of the Garford Motor Truck Co.

Mr. B. A. Gramm's record in the industry dates back many years. He built his first truck in 1901 and since 1906 his production was exclusively motor truck. He is a devout disciple of the commercial car. In 1911 he located his plant in Lima, moving there from Bowling Green, Ohio. During the war Mr. Gramm was engaged in building Liberty trucks for the government. His plant and organization built the first heavy duty standardized truck for the army, which was known as the Class B Liberty. For his co-operation with the War Department, he was presented a distinguished service award. Mr. Gramm has been an active member in the Society of Automotive Engineers for the past twenty years and is regarded as one of the real outstanding pioneers of the industry. He will head the new company as president and chairman of the Board of Directors.

Mr. Kincaid, a firm believer of the importance of motor transportation in its relation to industrial and transportation expansion of the country, is eminently qualified by training and experience to shoulder a big part in the development of the Gramm-Kincaid Motors Co. He first entered the industry as an apprentice, advancing until he

became a master mechanic in 1912 with the Chicago and Eastern Illinois Railroad. As assistant to Walter P. Chrysler, Mr. Kincaid entered the automotive field, where his achievements in economical practices in production first became known. These practices, a great many of which are still adhered to, have always been in the form of specialized effort toward the development of high production at low cost.

During the war he entered the Curtiss organization where he helped turn out fighting planes for the World War. Later he was associated with the U. S. Light & Heat Corp. and finally came to Lima, Ohio, early in 1924, as assistant to the president of the Garford Motor Truck Co. While here by reason of this success in advancing improvements in design and in the extension of international distribution, he soon became recognized as a leader in the commercial car field. Before his resignation

Mr. Kincaid was vice-president and general manager of the Garford Co. He is an active member of the American Society of Mechanical Engineers. In the new organization he will be vice-president and treasurer.

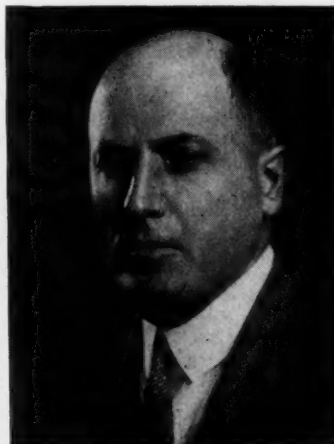
Through the collaboration of these two capable men, widely recognized in the industry by proved ability and achievement, the introduction of a line of trucks that will establish new standards should be a natural sequence. A better team could not have been formed; one member brings the wealth of experience obtained through the conspicuous part he played in the fundamental development of motor truck construction from the pioneer days down to the present time; the other, a genius in production, will provide scientifically correct and economical production. It is expected that the product of these two men combined with a very forward, thought-out merchandizing plan and service policy will cause truck buyers and dealers throughout the country to await further announcements with considerable interest.

The new company starts not only with a clean slate, but many of the ideals which Mr. Gramm has long expounded in the motor truck business will be put into effect in connection with the development of the new company. No definite information will be released at this time but the fundamental ideas which form the background of the new company are summarized in the words of Mr. Gramm when he said:

"There must be less investment in inventories, a greater turnover of invested capital, a lessening and simplifying of models, a far greater saving in the service end to the user, and above all, a fitting of the truck to the user's business, instead of the business to the truck."



B. A. Gramm



R. M. Kincaid

# Why I Have to Stop Selling Trucks

***"Sold Four Trucks the First Week I Was a Dealer. They Thought I Was Wonderful, But—"***

By "LIST PRICE BILL"

**I** HAVE to stop selling trucks immediately. Why? Just because I am getting a bad name with some of my customers and the news is getting around to everybody."

"Cutting prices is what caused all the trouble. And when I say trouble I mean trouble, bad tidings and sad news. Everything was O. K. until I took on trucks as a side line. Say, when it comes to worry, selling trucks the way I did is worse than starting down a mountain and finding that your foot brakes are gone.

"I had a nice business, garaging and repairs and a good line of passenger cars. Then I thought, why not take on a line of trucks. Some of the same people I am selling cars to need trucks. Kill two birds with one barrel, what? Nice discount, I figured, no trade-in every year because the color of the upholstery is changed or the lighting switch is changed to the other side. Yes boy, me for trucks.

## **Pops Up Like a Magic Rabbit**

"The wholesale man comes in just about that time. Funny isn't it. Think of buying something and the guy to sell it pops up like the rabbit in a magician's hat. Wonderful talker that fellow. Made me think that every day I went without selling his line of trucks I was robbing the missus an' the kids of just that many dollars. 'Truck selling is the real opportunity' he says. 'Just look at the trade-in problem he goes on. On our big job there is \$1,000 for you to play with. If a prospect wants \$200 or so more than you want to give him in trade for his old relic, take him up. You have \$1,000 leeway and stand no chance to lose! Sounds good to hear it that way, doesn't it?

"Well I signed up for the line and went ahead. Put up a sign, busted out with a few ads and I was a truck dealer. Thought so anyway. Good thing I didn't know what was ahead of me or I would have stalled my engine before I started that truck business.

"In a few days I found out that when it comes to knowing the truck selling game some of the truck owners could give me a week's start and then beat me to New York crawling. I breeze in and start selling trucks to a prospect. The man looked bored and acted twice as much that way. After awhile I get a rise out of him. 'What's the price?' Five thousand dollars to be exact is my answer. 'List yes, I know that. I read the papers' he comes back 'but how much to me?' 'Why how much to me?' I asks. 'Contact off' he says. 'I don't pay list price to nobody. Been three salesmen in to see me today. Everyone offered me something off. I like your truck, might buy three.'

"Well sir I was reaching for the order book and thinking maybe the missus could have that fur coat. But he brought me up with the back wheels sliding with his next crack. 'I'll give you \$3500 and one old truck for each new one and take four at that figure.' and then he stopped.

"Comes to hanging crepe on a proposition I nominate that guy for president for life. \$3500 and one old truck for each new one. One old truck traded in for \$1500 and its worth maybe \$500 to a bootlegger stuck on the road and the cops coming and worth about \$150 to anybody else.

"So I spoke to him just about that way. That there was nothing to it for me selling trucks that way. I would not make a nickel on the sale.

"I know you won't make anything on it," he says. "I don't expect you to make anything on them. But look what a selling point it will be for you to say you have sold me four trucks. It will give you a good start with the company too. Four five-ton jobs right on the start. Worth thinking about.

**This story is not the result of some writer's imagination, but is based on an actual interview by a member of our editorial staff. For reasons that are very obvious the dealer in question did not want his name mentioned. Undoubtedly many more dealers have had this same situation happen to them. Doing business this way certainly does not pay.**

"John. You already know the answer. I wrote down the order for four trucks and became the future owner of four mechanical misfortunes that were no good the day they were made and got worse and worse as time went on. On the money end I was just breaking even if I got junk prices for the relics.

"Sold four trucks the first week I was a dealer. Wholesale man thought I was wonderful. If he had been a general giving out medals I would have had a chest full.

"Well things went along for quite awhile. I was learning all the tricks of the game from the buyers. There wasn't anything they had overlooked. Believe me John, if I had only a \$1,000 to buy the advertising rights on the moon I would get one of my prospects to put the deal over.

## **The Prize Package**

"I won't bore you with a history of my business from that time to this but wait till I tell you the deal that finished me with selling trucks. One day a fellow

came in here and asked to see the five-ton job. I showed it to him and gave him the usual breeze about the car. Five bearing crank—full float—42 to 1, over-head and all that. Saw in a minute or two that he wasn't making the grade with my talk on details. Sounded him out a little and find that he doesn't own a truck, never had. Wanted to take a hauling contract a friend had put in his way. Joy and rejoicing I says to myself. Here is the prize package. A bird ready to buy a truck and no trade-in.

"How much is the truck, completely equipped and delivered with the details as you have specified?" he asks me.

"\$5000 plus freight and tax \$5367.89. 'I answers and then, course you won't believe it but he says 'I'll take it!' Don't ask for a discount, has no junk, pays list price without batting an eye.

"Soon as he got out of the place I did a hand spring and galloped to the phone to spread the joyful news to the missus. Got one at list price at last I said to myself over and over.

"Well I delivered the truck and got the cash and the notes which were good as gold and in a short time the cashier enters the dope on the pass book and I am over a thousand berries to the good.

## **And the Storm Broke**

"You can't see why that made me quit the truck business. Kinda sad making one thousand slugs you think. Just a minute John. Everything went fine for a few weeks, then one day the thunderstorm broke. That bird comes in here with fire in his eye and concealed loud speaker in his throat. He looks mild but boy I am here to testify that when it comes to giving a man a calling down he has got the world stopped. And he went after me for fifteen minutes without coming up for air once. Robber, cheat, thief, jailbird were just the mildest things he called me. Finally I got a word in and asked what it was all about and what had caused the earthquake.

"Didn't take him long to tell me. He had talked to the fellow I sold the first four trucks to. They got to pow-wowing about trucks and the first guy asked him how much he paid for the truck. And of course, he answered 'List price' just like a gentlemen. Then the first customer of mine explains all about the junk trucks traded in at \$1500 each and gives the last owner the merry ha! ha! That didn't satisfy the last customer. He is a thorough guy—I'll say that for him. He went to several of my customers and found out just what kind of a deal each one got. Well the first guy made the best deal and the last one was the only one who paid

(Continued on page 58)



# "Time" Sales Methods Important to Buyer and Dealer Alike

## *How Misunderstanding May be Avoided by a Knowledge of Partial Payment Methods*

By EDMUND B. NEIL, B. M. E.

**M**R. DEALER! Are you entirely satisfied when you close a deal for a truck to be paid for on "time"? If not, you will increase your confidence and mutual business friendship by studying the following resume of "time" sales methods and the calculations involved when a motor truck is sold on a partial payment basis.

The principle of the "time" sale is nothing more than the granting of credit to the erstwhile buyer and the retention of notes or other evidences of indebtedness by the seller of the goods.

The same principles which are applicable to credit determinations in a general way may be applied to motor truck sales as well as to the many other forms of purchase wherein the character and integrity of the purchaser and his financial ability form the essential prerequisites of successful and mutually satisfactory sales.

Any business negotiation, however small, must represent the transfer of some capital, for unless the purchaser possesses sufficient capital to enable him to conduct his business without becoming too deeply involved in debt, he of course cannot succeed.

### Partial Payment Idea

Since the success of the whole plan revolves around the desire of the seller to increase the sales of his products by appealing to a market with a lesser amount of capital, and the desire and willingness of this market to develop and determine its own destinies through the legitimate use of borrowed capital whereby it may do business, there is no reason why the whole partial payment idea cannot and should not be placed upon the highest standard of ethics and business procedure.

Unfortunately, this is not always the case. There are far too many buyers who seem to think that because they are under obligation to the seller for the payment of just indebtedness, they can take undue advantage of the seller; and on the other hand, there still are many sellers or dealers who thoroughly justify the purchasers' opinions of them by the manner in which they conduct their "time" sales business. The presentation of the principles involved should therefore be of value to both.

Since these conditions seemingly exist today, it is believed that a careful study of the basic principles underlying sales made on a conditional basis may be of value to both.

Fundamentally the "time" sales idea may be divided as follows:

- No. 1. The purchaser should pay to the truck dealer the largest amount of capital which he can afford at the time the initial deal is closed.
- No. 2. This capital should cover all the expenses involved in conducting the transaction, and should be sufficient to protect the dealer against loss in case repossession of the truck is necessary at any time.
- No. 3. The dealer is justly entitled to a fair rate of interest on the outstanding capital given as a credit to the purchaser in the form of his monthly notes.

Let us now carefully consider each of these fundamental points.

The initial transfer of capital represents the "down" payment made by the purchaser to the dealer at the time of delivery of the vehicle. The actual amount necessarily depends upon the type of vehicle involved in the transaction, the profit which the dealer must make on the sale, and upon a third factor too often lost sight of in transactions on a "time" sales basis.

The risk involved is mutually important to dealer and purchaser, for the dealer must assure himself that he cannot lose in the transaction, and on the other hand, unless the purchaser risks a sufficient amount of his own capital to make it of vital importance for him to successfully operate his truck, his interest in making a success of his business is likely to fall below par, with the result that eventually the dealer must step in and replevin or repossess the truck.

### Used Truck Greater Risk

Present sales conditions indicate that the amount of initial payment should be at least 20% of the gross amount of the sale, and preferably higher. This is particularly true if a used truck is sold in place of a new vehicle, for in such cases the risk is naturally greater particularly for the dealer, since the established character of the purchaser is more likely to be open to question.

The truck purchaser may argue that he is not so sure that his used truck will perform satisfactorily, hence he may not wish to risk so much as an initial payment, but it must be remembered that he can assure himself regarding this by deal-

ing only with responsible concerns who are in a position to stand back of any used truck which he purchases.

From the dealer's angle the **initial payment forms a very important item** in the entire transaction. Unless a substantial initial payment is made he cannot long continue in business, for while he may have a large amount of capital he cannot continue to extend credit to truck purchasers without "freezing" the money which he must have to operate his business successfully.

It is for this reason that many dealers find it necessary to call upon the services of reputable financial organizations.

But just the same the dealer stands to lose if the transaction is not conducted in a businesslike way, for not only may his own credit with the finance company become impaired but also he may have a used truck to dispose of at a loss.

It is equally important that such items as insurance on the truck, taxes, etc., be covered by the initial payment, for if they are not, a still greater advance of capital must be made and the amount of the notes carried by the purchaser increased, which as mentioned later, is probably one of the fundamental causes why so many "times" sales nowadays finally end to the dissatisfaction of both dealer and purchaser.

### How to Explain

Mr. Dealer, how often have you heard the question asked by a purchaser—"Well, are you charging me a fair amount of interest, or are you doing the same as some of our 'dollar down' companies do in pyramiding the total interest I must pay?"

And how can the purchaser protect himself against any unfair practice in determining the amounts of his notes?

The answers to both these questions involve a consideration of methods of calculating interest. For convenience let us classify the ordinary methods into four classes:

- No. 1. What may be called the "average rate" method.
- No. 2. The "interest on note" method.
- No. 3. The "bank rate" or "interest on unpaid principal" method.
- No. 4. Combinations of these three methods.

The easiest way to point out the differences between these methods is to take a specific example:



Let us assume that the total price of the truck itself is, say, \$4000, which includes all the equipment, body, etc.—in fact, represents the cash price of the truck. Let us also say that 25% of this, or \$1000, covers the initial or “down” payment, leaving a remainder of \$3,000 to be covered by notes. For the present we will forget about taxes and the other items and assume that this amount of \$3,000 is to be paid in full within fifteen months, or at the rate of \$200 per month if no interest was to be included.

Now, assuming that the legal rate of interest is 6% per annum, we multiply the interest rate by the principle sum (\$3000 x .06), and find that in accordance with method No. 1, or the “average” rate plan, the interest per year would be \$180, and for the fifteen month period (1¼ years) it would be \$225. Dividing this interest by fifteen months we have the amount of \$15 per month to be added to the original amount of each note and arrive at the total of \$215.

This method of calculation is in most cases legal, but let us investigate further: Is it entirely fair to the truck purchaser?

In the first place, banks and financing institutions can loan money on a monthly basis and can accordingly receive payment for indebtedness in the same way. Thus we see that interest can be determined by months and not on a “per

writer has reference to as the “dollar down” companies.

However, the practice is slowly becoming obsolete; and concerns operating on sound business principles are following one or the other of the two systems mentioned later.

The unfairness of this “average” rate method will be readily seen when we consider these two.

The second or “interest on note” method is one which was followed by one of the large truck and car manufacturers for many years, and is as follows:

#### Difference of \$105

Assuming that we use the same figures as before, but instead we think particularly about the note itself, we calculate the interest on a monthly basis. Interest at the rate of 6% per annum means interest at ½% per month. Now, each month a certain amount is paid by note, the total of which at the end of the time payment period equals the principal sum of \$3000. This can be made more clear by a brief tabulation of the payments as in Table “A.”

Note that the interest in this case is but \$120, whereas in the former case it was \$225 for the total 15 month period.

We will now consider the advantages and disadvantages of this second system of calculation. We believe that it is ob-

viously fair to both parties insofar as interest itself is concerned, for the payments as made are deducted from the amount due and interest determined on the monthly balance.

But notice also that the amount of the notes increases each month. While this may be an advantage to the truck operator in that as the earning capacity of his truck increases he pays the larger notes accordingly, it is not entirely fair to the dealer.

Why is this true?

When the truck purchaser buys his truck he in reality borrows money from the dealer or finance company, and consequently should owe him the largest amount of interest at the start, with the amount of borrowed capital bearing interest slowly decreasing as the notes are paid. Thus, to be fair to the dealer, the purchaser should pay the most interest at the start and not toward the end of the time payment period.

In other words, he should pay interest on the “unpaid principal” method and not upon the total value of the unpaid notes themselves.

Then there is another disadvantage to the dealer when interest is calculated on this basis: If it should become necessary for the dealer at any time during the “time” payment period to “take back” or repossess the truck, the seller loses the largest amount of interest and hence suffers a net loss, since he must procure his money from his bank or finance company on what may be termed the “unpaid principal” method.

While this is obviously an advantage to the purchaser in cases of this kind, it can hardly be considered entirely fair to both parties, since the dealer loses an amount to which he is justly entitled.

TABLE “A”

Month	Note	Interest	Total	Remainder Due on Notes
1	\$200.00	\$1.00	\$201.00	\$3,000.00
2	200.00	2.00	202.00	2,800.00
3	200.00	3.00	203.00	2,600.00
	etc.	etc.	etc.	etc.
Up to 15	200.00	15.00	215.00	200.00
	\$3,000.00	\$120.00	\$3,120.00	

annum” basis, even though the total legal rate may be stated as 6% or 8% or whatever it may be.

#### “Average” Method Obsolete

This “per annum” or “average” method of determining interest is still used by many concerns selling goods on a “time” sales basis, particularly those whom the

TABLE “B”

Month	Note	Interest	Total	Remainder Due on Unpaid Balance
1	\$200.00	\$15.00	\$215.00	\$3,000.00
2	200.00	14.00	214.00	2,800.00
3	200.00	13.00	213.00	2,600.00
	etc.	etc.	etc.	etc.
Up to 15	200.00	1.00	201.00	200.00
	\$3,000.00	\$120.00	\$3,120.00	



#### In the Gasoline Business the Cost of Transportation is the Pivotal Factor

So says L. V. Newton, transportation manager of the Pure Oil Co. He further states that it is impossible to operate a truck profitably on less than two loads a day. This is now being accomplished and over an operating radius 100 per cent greater than before with new high speed, six cylinder Pierce-Arrows which were recently acquired. These jobs are capable of road speeds of from 45 to 50 m.p.h. without imposition of strain on the engine.

#### Interest on Unpaid Principal

The third method of calculating interest, and the one which most closely follows banking practice, and to which the writer has adhered for some years, is what we have chosen to call the “interest on unpaid principal” method.

In brief, this method is exactly the reverse of the second plan above outlined, wherein the largest notes come at the start of the time period, the interest being paid in direct proportion to the decreasing size of unpaid balance.

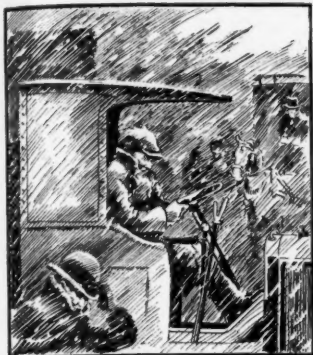
#### Refer to Table “B”

While this method has the disadvantage insofar as the purchaser is concerned, of having the largest notes come due at the beginning of the time payment period, it nevertheless is more in accordance with established financial practices, and hence cannot be criticised from this source. As a general rule, therefore, it represents the most advisable method to follow in de-

(Continued on page 60)

# How Big a Factor is the CAB

OBSOLETE



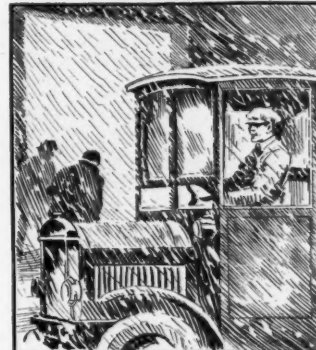
Does This Promote Efficiency?

to the

## MANUFACTURER, DEALER and OPERATOR?

### Why Should the Dealer be Interested in CABS?

MODERN



Will This Driver Ever Quit?

**W**HY are closed cars outselling open cars in the passenger car field? Isn't it the year-round comfort afforded drivers and passengers? For that reason the cab is an item of equipment that the manufacturer, the dealer, the fleet owner and the operator can ill afford to overlook. Since the cab is inherently a member of the automotive family, its existence, utility and benefits are felt by all. Only some refusing to recognize the distinct place the cab has in their respective businesses have carelessly let a profit-maker slip out of their control. Misguided, perhaps by precedent, or ignorant of certain changes they refuse to interpret the "handwriting on the wall."

Improved year by year in construction and design, the cab of today is such that every important detail making for the comfort and safety of the operator has been accommodated. After all, "driver comfort" is the crux wherein the demand for the cab is founded. Without "driver comfort" all the other desirable characteristics offered by cab equipment can not be consummated. First comfort, then efficiency. The earning capacity of a truck is in direct proportion to the efficiency with which it can be operated in all kinds of weather and at all seasons of the year. "Driver comfort" is pre-eminently present in the modern cab.

#### The Manufacturer's Interest

The growing demand for a closed cab that will give the driver ample protection without hampering his movements or blocking his vision, has been recognized by many manufacturers of motor trucks. If manufacturers, who always try to determine the trend of popular thought on matters pertaining in any manner whatsoever on their products, see fit to recognize a certain condition, it is a dependable barometer. Manufacturers with vision also try to accommodate the users' demand. Hence, we now find many manufacturers supplying the cab as standard equipment. The truck manufacturer has been and still

is particularly desirous of obtaining a cab on which he can standardize and recommend on his truck. His decision, due to the fact that his product is sold in every clime, for use over country roads, through congested city streets and in all kinds of weather, is based on the type that will best fulfill the majority of these requirements.

Dealers should be particularly interested in cabs. The foremost reason should be from the important standpoint of service. The dealer should be in the position to advise and accommodate patrons in every respect. The other factor is that of profit, which in itself should be sufficient inducement for him to carry a complete line of cabs.

#### The Dealer's Interest

A standardized cab business is one that affords a great many benefits to the dealer. The dealer can complete an entire deal with his prospect, by providing body, cab, etc., complete, without further annoyance or trouble to the buyer. Or, if the prospect merely wants a chassis, he can induce his prospect to purchase a cab for the reason that he can service it, sell it at a low initial cost, because it is a standard job, replacement parts can readily be secured, and finally the cab can be adapted to meet any service requirements. Many dealers have made a practice of referring much profitable cab business to the local body builder. This profit could just as soon have been diverted into the coffers of the dealer by standardizing on a line of cabs. The old story of having the local body builder build according to special specification is passe. The popular practice today is to purchase, unless provided as standard equipment, a cab of standard and known make direct from the dealer.

An interesting story in this connection was presented by a manufacturer as a sales argument in combating the made-to-order argument: "If somebody told your grandfather that he could walk into a store and get a better looking, better fitting pair of shoes immediately than he

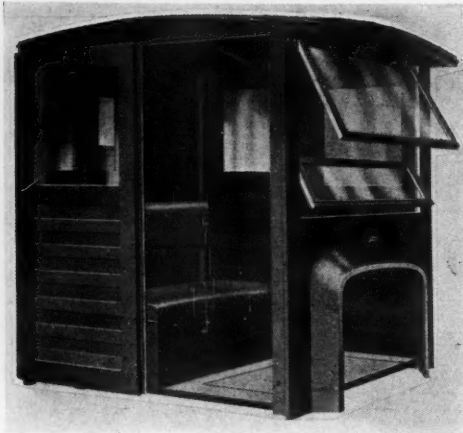
could by having them made to order, the old gentleman would sort of chuckle. Still that is the way we buy shoes today and it is the way we buy cabs." This sums up the changed methods very nicely.

#### The Operator's Interest

The real benefit of cab equipment is felt by the fleet owner and his operators. Driver comfort is of utmost importance to the average truck owner because it means greater profits in cases where trucks are rented out for hire or reduced delivery costs when owned by the concerns whose goods they move. No man can work efficiently if he is benumbed with cold, sweltering in heat, half blinded with snow, rain or dust. The driver working under such conditions will be reckless and careless in his treatment of the truck and cargo. These factors should not be lost sight of particularly in view of the great increase of vehicular traffic and numerous accidents, which are characteristic of the busy districts of our large cities of today. It is manifest that the driver should have greater control over the truck he drives. Hence, every opportunity for increased control should be extended him. First in the form of a cab and secondly with a cab that will protect him and at the same time permit him to operate his truck unhampered by close quarters or lack of vision.

From a maintenance standpoint the cab question has a distinct psychological slant that should be capitalized on. A driver is prone to take more interest in the condition of the truck when he is supplied with a comfortable cab. The foremost thought in his mind is an uninterrupted run throughout the entire day. He knows that if the engine is not properly lubricated or the tires are underinflated that he might perchance be forced to make a roadside adjustment or repairs that will expose him to the discomfort of inclement weather. His main desire is to remain in a comfortable cab for the duration of his trip. He therefore manifests keen interest in determining whether all parts subject to

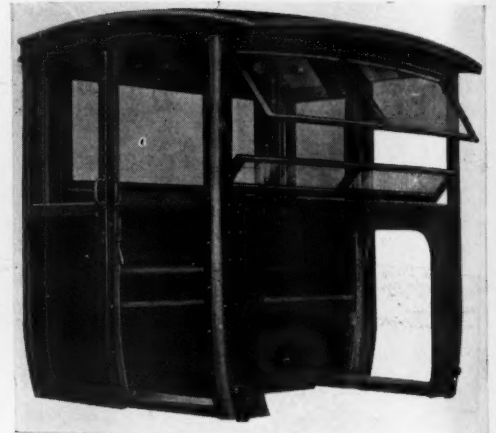




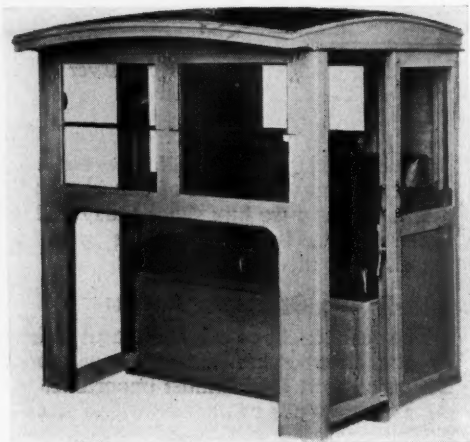
Spaulding Coupe



Field Vestibule No. 70



Rain-or-Shine Cab



Mulholland Cab

## CABS

That Furnish  
Driver Comfort

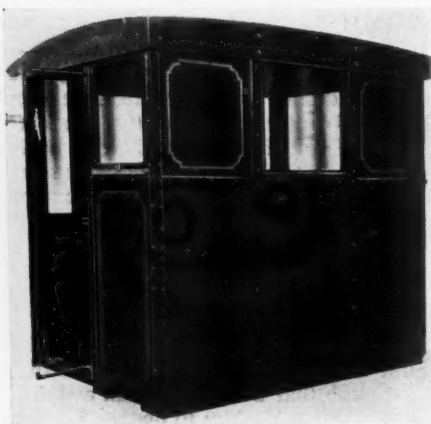
While fundamentally similar, each cab illustrated here, possesses characteristics distinctly individual.

*The Dealer Should Familiarize Himself With the Various Features of Refinement*

Dealers Owe This Service to Their Customers



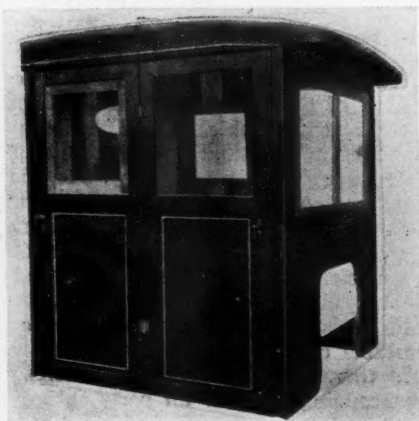
Collins Cab



Stunkard Cab



Metro Cab



Above: Clare Ford Cab. Left: Syracuse Cab No. 205. Right: Springboro Cab



wear and possible breakdown are properly lubricated or not.

The cab of today is the product of many years of experimentation. Little difficulties and problems, that make themselves apparent only through experience, have been skilfully met by the engineers until today the cab is as near perfect as it is possible to make it.

Some of the most important factors of design are the following: The framework, which must be rugged and strong yet light and flexible; the roof, which should be of light construction, firm against the action of vibration and covered with a durable water-proofing material; the doors are offered in any number of designs, vary-

ing in general design and construction, however, whether swinging, sliding, etc., they eliminate sticking, binding, rattling and fit snugly; window construction, considerable variation is also noticeable here, but the underlying principles are identical, namely: The reduction of blind space, maximum vision, secure mounting of sheet glass, elimination of rattle, weather tight joints through use of felt and rubber strips. Upholstery, although dependent upon the price of the particular cab, one characteristic is not lost in the designing of the seat and upholstery and that is driver comfort. The seat and cushions are such that maximum riding comfort is afforded the driver.

The above is a brief summary of the general constructional features of the modern cab. Every manufacturer of cabs, however, has incorporated many refinements which are distinctive to his own line. These special features are interesting and meritorious, but space limitations will not permit a review of them.

In the following paragraphs we have attempted to present a broad picture of the various cabs obtainable and on the market today. Since only a short resume of details together with an illustration, wherever possible, is given, we would suggest that the reader communicate with the manufacturer should additional details on any particular cab be desired.

### RAIN-OR-SHINE CABS

The General Woodwork Corp., Cincinnati, Ohio

These cabs designed to provide what the name implies can be converted into wide open cabs when the occasion demands. They are built in three standard sizes, and are applicable to all sizes of trucks of from  $\frac{3}{4}$  to 7 tons capacity. They are constructed of hardwood and steel for flexibility and according to scientific principles that are said to make the cab non-conductive to heat or cold. The doors are of the sliding type; windows disappearing.

### COLLINS CABS

Collins Plow Co., Quincy, Ill.

Roof is full slatted and covered with oiled duck securely held under the eaves by moulding. The frame is of oak, mortised, glued and screwed. Panels are of steel bound by Clover Leaf Moulding. Windows are fitted with anti-rattling devices and are of the disappearing type. Doors swing back and can be secured by fasteners at rear of cab. It is quickly demountable. Weather stripping is provided on each door. The solid constructed back is fitted with a sliding window. The cottonwood frame of the windshield is bound together by metal strips. Upper and lower sashes are fitted with double strength glass. The cushions are box type, made in 2 sections with 15 coil springs each. Double cushion feature allows gas tank to be filled while driver is seated.

### FIELD No. 70 VESTIBULE CAB

Field Body Corp., Owosso, Mich.

Designed for mounting on any one ton truck. The door on the driver's side swings from the back toward the front, locking in an open position with its edges flush with the windshield making entrance or exit easy and efficient for the driver who needs only to slide straight out from under his steering wheel. Door on right side swings from forward to back. The back of the cab is solid and is furnished with a drop sash window. All windows, of which there are five, are of the drop sash type. They are fitted with rattle-proof and weather tight devices. Spring recoil devices prevent breakage. The windshield is of the one-piece design and

constructed of double metal channel. It is ventilated either in or out and is weather-tight when closed. It can be locked at any angle either in or out. All wooden parts are covered with pressed metal previously enameled which gives protection and appearance. Corners are constructed of angle iron by which also all the parts are assembled through the use of bolts. Parts are interchangeable. The top is slatted and covered with double texture top material. The seat box is adjustable, as is also the floor boards and dash. Back and seat cushions are constructed of deep coil springs covered with imitation black leather.

### METRO CABS

Metropolitan Body Co., Bridgeport, Conn.

The Metro Closed Cab and the All-Steel Open Cab feature this company's line. The closed cab has sliding doors with drop sashes and windows permitting quick adaptation to weather conditions. A permanent and durable top is secured by the employment of small slats and heavy bows. All four sections of the windshield glass are set in rubber. Hardwood and metal is used throughout in the construction, metal being used in the dash and back. Reduction of rattle and weight is said to be obtained by the use of light steel on the inside door and side panels. Heavier steel is used on the outer panels. Cushions and lazy backs are full-spring construction. Locking devices hold the doors firmly open or closed. The design is such that maximum vision is afforded. All moving surfaces, such as windows, doors are equipped with anti-rattlers. All parts are standardized and interchangeable for repair or replacement. The cab is light in weight.

### SPAUDLING COUPE

Spaulding Mfg. Co., Grinnell, Iowa

The doors are large and silenced and are designed to hook back flush with the cab sides. Double ventilating windshield combined with drop windows in side panels and slide window in rear, provide ventilation. Depth of cab is slightly longer than average. Twin cushions, one-piece top,  $1\frac{1}{2}$  in. stock in door, and Spaulding silencers are designated as the main features of the cab.

### CLARE FORD TRUCK CAB

Clare Mfg. Co., Clare, Michigan

Designed for comfort and service this cab is constructed of hardwood and assembled with screws and bolts. The sides and back are of iron mounted on a substantial wood frame. Cushions and back of seat are constructed with springs. Windows are of the disappearing type, and the windshield can be tilted to any angle desired. Built a little longer than conventional this cab is designed to give ample leg room and comfort.

### THE MULHOLLAND CLOSED CAB

The Mulholland Co., Dunkirk, N. Y.

This sliding door cab is made in two sizes—54 and 60 in. The back of the cab is constructed of  $\frac{3}{4}$  in. tongued and grooved pine, reinforced with heavy angle corners, making a substantial bulkhead able to resist hard usage if heavy freight is piled against it. The framework is oak; panels, Plymetl, and the windows slide in felt channels. Special catches on the three back windows permit control of ventilation. The plate-glass windshield is split. Tongued and grooved pine is used on the roof. Cushions and back are built on deep springs. Brass spring strips are used instead of rubber under the windows and in the sides of the windshield.

### STUNKARD CAB

Stunkard Brothers, Brazil, Ind.

This cab designed for severe service is constructed of metal. The steel panels are riveted to angle bars. The makers state that there are no loose joints after a few months of service. In the event of collision the body can be readily repaired. Oak is employed in the doors and front and top—double ventilating windshield. The doors are hung on a pivot rod with top and bottom arm carrying from center. This construction is claimed to eliminate sagging and rattling. It also permits ready detachment. Comfortable spring cushions and backs are provided and the roof is covered with heavy oiled duck.

(Continued on page 41)

# Handling Service on a Business Basis

***Making the Service Department Pay Depends a Good Deal on How the Mechanics Are Compensated. The System Employed by the Bonnell Motor Car Company, of Newark, is Interesting***

By C. P. SHATTUCK

**W**HENEVER you find a truck dealer who started small but who is now well established, you will discover that he has given as much attention to the organization and development of his service department as to his sales organization. That kind of a truck dealer survives through periods of business depression because he has something else to bank on besides sales. This article deals with the Bonnell Motor Car Co., Newark, N. J., which is a concern that has attained sales results through the type of service that satisfies—not free service but rather the kind that keeps the truck on the road with low maintenance costs. The company represents the Graham Bros. and Dodge line and, being located in a city of approximately 500,000 population, has among its customers many business concerns operating fleets of trucks, besides a large number of single unit owners.

## Accessible to the Owner

The service station is separated from the sales department. One is impressed with the prompt attention given by the service force. As one enters the service office he is greeted courteously by a young man who quickly places one in touch with the proper head of the department, F. P. Vogel, superintendent. He is as readily accessible as one of the service inspectors and it is this kind of service the truck owner appreciates. If more truck owners could readily make contact with the man higher up there would be less grief in service.

There are two features of the Bonnell service that stand out prominently. The first is the night service. This was in-

augurated some little time ago because of the desire of the company to render 100 per cent service to both fleet and single unit operators. It is the experience of every service manager that it is difficult to sell many of the owners the value of frequent inspections, proper lubrication and adjustments during the day. These owners as a rule cannot spare the truck for a few hours—at least they believe they cannot. As a result the trucks are operated to a point where major repair work is necessary and, frequently, the transportation service is interrupted.

## Night and Day Service

The fleet owner, while more prone to keep his units in good condition, does not always desire to invest in a spare truck. While some dealers have solved this problem by having a rental truck available for the owner it has its disadvantages, among which is the cost to the truck dealer. Then, too, the large department store, for example, prefers to deliver its merchandise with its own trucks for advertising reasons.

When Superintendent Vogel sold the executive the idea of a night service the sales department saw the value, but those who keep watch of the overhead and expenses predicted it would be a costly venture. However, it was decided to give the plan a reasonable trial. Now, despite the fact that the accountant lost no opportunity to tack on every charge an accountant can, the plan proved Mr. Vogel's contention, that the service would be self-supporting. And there is every reason to believe that it will pay profit in a very short while.



**F. P. Vogel**

Superintendent, among other improvements sponsored Night and Day Service

The same service is rendered at night as during the day. One of the inspector-testers, who by the way, are service salesmen, remains on duty until 10.30 p. m., by which time all trucks arrive at the station. This affords ample time to inspect, test and write the shop order. This tester does not report until noon the next day. The testers alternate on night duty. These men do not object to the night work. They are interested in the success of the service station for reasons which will be given later.

There are three mechanics on duty, operating along the same lines as the tester, and there is a parts man on duty as well. He also helps to write the orders, make out bills, etc., and if there is a wreck he attends to getting it into the station.

The work done at night is not tested by the night men but is left for the day crew, which arrives early thus providing ample opportunity to complete the test and have the car ready for delivery. It may be assumed that occasionally there would be some delay, or that the day inspector would find some job improperly done, but this is very rare because of the system of compensating the mechanics.

## Men Paid on Hourly Basis

This company employs what is termed the flat rate system but this is not a true definition because the mechanics are paid a bonus and the arrangement is such that it savors of the piece work method.



Attractive Quarters of the Bonnell Motor Car Co., Newark, N. J.



The plan has the fundamentals of the piece work system because a time is set for all operations. But unlike the true piece work method the men are not paid a fixed sum and allowed to make as much as they can by speed. The Bonnell mechanics are paid on the hourly basis.

For example, we will assume that a given operation is scheduled to take 5 hours and the man is paid 60 cents an hour. He completes the work in 4 hours. He has then a credit of one hour. He is given another job and with this he earns another credit, and so on. Now, his wages are paid on the basis of let us say 48 hours a week or 48 productive hours. But at the end of the week he will have, say, 48 additional, credit hours. These are extra hours he has earned by his ability and endeavor. On the 15th of each month the credits are computed and the mechanic given a check for the credit hours which is termed a bonus by the organization. Some of the men receive nice checks each month.

#### OPERATION "A"

Remove cylinder head, scrape carbon.  
Tighten starter chain.  
Equalize and adjust both brakes.  
Test battery and charge if necessary.  
Drain oil, flush case, clean strainer and refill.  
Remove all wheels, wash wheel bearings, repack with grease.  
Adjust all wheel bearings.  
Grease transmission.  
Grease universal.  
Grease differential.  
Fill all grease and oil cups.  
Oil brake connections.  
Wash and polish car.

Price, \$15.00, Material and Labor

#### OPERATION "B"

##### Special Motor Job

	Labor	Approx. Parts
Test car on Wasson Motor Check.....		
Take up on all main and connecting rod bearings....		
Fit new piston .....		
Fit new piston rings .....		
Fit new wrist pins and bushings.....		
Clean carbon and grind valves .....		
Clean fuel strainers and points .....		
Time motor .....		
Test car on Wasson Motor Check after 500 mile run..		
	\$35.00	
	Parts and Labor	

##### Regular Lubrication

Remove wheels, wash bearings, repack and adjust....		
Grease transmission, differential and universal.....		
Fill all oil and grease cups.....		
Drain motor oil, flush, clean strainers and refill with Dodge Brothers Special Oil .....	\$5.00	\$2.30

##### Partial Lubrication

Drain motor oil, flush, clean strainers and refill with Dodge Brothers Special Oil .....	\$1.00	\$1.65
Clean grease off rear wheels and brakes.....		
Drain differential to proper level .....	\$4.00	\$ .35
Adjust both brakes .....		

#### Flat Rate Prices on Repair Work—Dodge Brothers Cars

Overhaul rear end—full floating .....	\$24.00	\$28.60
Overhaul rear end—semi-floating .....	22.00	28.60
Overhaul transmission .....	24.00	18.35
Overhaul cone clutch (1915-1916).....	20.00	10.16
Overhaul disc clutch (1916-1917—5 plate).....	18.00	12.20
Overhaul disc clutch—present type .....	16.00	12.20
Reline foot brakes .....	8.00	5.25
Reline hand brakes .....	8.00	2.90
Reline both brakes (in one job).....	13.00	8.20
Equalize and adjust both brakes .....	2.50	....
Replace rear lower spring .....	4.00	8.00
Replace front spring .....	2.50	6.00
Replace rear fender .....	3.00	9.50
Replace front fender .....	4.00	9.50
Replace side splash pan (old style).....	2.00	2.65
Replace side splash pan (new style).....	2.50	4.90
Replace running board (old style).....	4.00	5.10
Replace running board (new style).....	4.00	7.20
Rebush front construction, spindles and tie rod.....	8.00	3.30
Rebush fan .....	2.50	4.80
Repair steering gear .....	10.00	6.40
Clean carbon .....	3.00	.40
Grind valves, clean carbon, adjust tappets.....	10.00	1.10
Tighten starter chain .....	1.00	....

#### OPERATION "C"

##### Flat Rate Prices on Repair Work—Graham Brothers Trucks

	Labor	Approx. Parts
Overhaul rear end .....	\$30.00	\$28.80
Overhaul transmission .....	26.00	18.35
Overhaul clutch .....	18.50	12.20
Reline foot brake .....	12.00	9.60
Reline hand brake .....	12.00	5.90
Reline both hand and foot brakes .....	20.00	15.20
Equalize and adjust both brakes .....	3.50	....
Replace rear spring .....	6.50	11.00
Replace front spring .....	2.50	6.00
Replace front fender .....	4.00	9.50
Rebush front construction, spindles and tie rod.....	8.00	3.30
Rebush fan .....	2.50	4.80
Repair steering gear .....	10.00	6.40
Remove cylinder head, clean carbon .....	3.00	.40
Remove cylinder head, clean carbon and grind valves..	10.00	1.10
Tighten starter chain .....	1.00	....

##### Regular Lubrication

Remove wheels, wash bearings, repack and adjust....		
Grease transmission, differential and universal.....		
Fill all oil and grease cups.....		
Drain motor oil, flush, clean strainers and refill with Dodge Brothers Special Oil .....	\$7.50	\$2.30

##### Partial Lubrication

Drain motor oil, flush, clean strainers and refill with Dodge Brothers Special Oil .....		
Clean grease off rear wheels and brakes.....		
Drain differential to proper level .....	\$5.50	\$ .35
Adjust both brakes .....		

This system has been in effect for some time and has proven entirely satisfactory both to the company and the mechanics. It has had the inevitable result—increased production and increased earnings for the men. When the plan was first inaugurated there was one man, an engine man of years of experience who could not see how it would be possible or practical in his work. He was not sold on the idea but as he was a valuable man it was agreed that he should continue on the weekly wage basis. Here is the result. When this man saw the bonus checks

#### OPERATION "D"

Remove cylinder head, scrape carbon.  
Grind valve—reseat if necessary.  
Adjust all valve tappets.  
Clean fuel strainers.  
Clean and adjust distributor points.  
Tighten all body bolts.  
Equalize and adjust both brakes.  
Tighten steering gear.  
Tighten steering gear ball joint.  
Tighten steering gear drag link.  
Line up front wheels.  
Remove all wheels, wash wheel bearings, repack with grease.  
Adjust all wheel bearings.  
Grease transmission.  
Grease universal.  
Grease differential.  
Fill all grease and oil cups.  
Oil brake connections and rods.  
Drain oil, flush case, clean strainer and refill.  
Wash and polish car.

Price, \$30.00, Material and Labor

of his fellow workman he began to think there was something in the plan and finally agreed to try it. And now, if he was asked to go back to the old wage plan he would surely give the superintendent some argument.

The service system provides for the "come back." Any work not satisfactorily performed is carefully inspected and if the mechanic was at fault he does the work over on his time. "Come backs" are rare because the men are careful and the inspection is rigid. All completed jobs are thoroughly tested and the system prevents any possible collusion between the testers and the men. There is always the owner who stands in between.

Where flat rate, piece work or bonus systems are employed, care must be exercised that the men are correctly credited. While the men will keep a record for themselves they are likely to error, therefore it is up to the service station to make the record keeping fool proof. At the Bonnell station a very large printed sheet is used. This is kept by one man who receives the repair order, enters it with requisitions, etc., and the mechanic when completing his work turns over the order which, of course, includes start and finish of the work. In this way the sheet carries the record of the work, time, parts, etc., and is used to check against the station records. Any dispute as to bonus



time can be readily settled by the sheet for the shop time, etc., will check with the forms, etc. The sheet is also of value in that the man in charge, as well as superintendent, can note the production at a glance. Jobs in progress can also be noted. Various forms are employed with the usual duplicates for filing, etc. All Dodge service is on the flat rate to the owner. The price is given for parts and labor before any work is begun. A number of flat rate operations have been worked out on the Graham Bros. trucks and others are being compiled, it being the intention of the company to afford the owners the same service as on Dodge trucks.

The Dodge flat rates are too well known for further discussion but a few of the so-called combination service operations are reproduced herewith, and which give a lump sum or cost for a number of operations. These combinations, so-called, are proving very popular and were developed to care for what is termed "standard" work, that which is most frequently in demand.

The "A" operation (this is not the designation) deals with lubrication to a great extent, although carbon is removed. The operations included are those very frequently overlooked by the truck owner

and an analysis shows that the combination will increase the life of the truck to say nothing of avoiding the possibility of delays on the road. This "A" operation applies both to Graham and Dodge trucks.

The "B" operation is a special motor job. Included on the form is the regular lubrication operation, also another or partial lubrication. Following this are 18 other operations, and all give the price, not hours. All of these operations apply to the Dodge 1500 lb. capacity truck. In connection with the brake operations the owner who neglects proper lubrication of the linkage, or who has a broken stud in the assembly, is charged extra and above the flat rate. This is, of course explained to him by the service salesman, and the latter endeavors to diplomatically point out to the owner the cost of neglect. It should also be explained that an effort is made to educate the owners to the value of frequent inspection and proper lubrication and how they reduce maintenance costs. (See "B").

Tables "C" and "D" are the flat rates worked out for Graham Bros. trucks, older models.

In connection with the lubrication rates an extra charge is made on brake work when it is found that the differential housing has been filled at too high a level

and the lubricant has worked out and smeared the lining, etc. A charge of 30 minutes extra labor is made for the cleaning. Here again the owner is given an explanation to show him why an extra charge is made.

At the time of this writing, Mr. Vogel was developing a "tickler" or follow-up system for those owners who do not accept the advice of the service salesmen for needed adjustments or repairs. These owners will be followed up, for it is the endeavor of the station to keep maintenance costs down.

Field men are employed whose duty it is to call on the new owner, inspect and make minor adjustments as well as to supply useful information such as taking care of the cooling system in cold weather, etc. There are frequent conferences between the various heads of the service department at which the various problems are thrashed out and ideas and suggestions discussed. The Bonnell Motor Car Company carries a large supply of parts for both trucks and a feature of the service station are the large display windows in which are shown equipment and accessories for the trucks. During November these windows were dressed with fall attire with an atmosphere of the outdoor hunting season.

## Shipping Printing Ink in Bulk

BY the use of a truck and semi-trailer at their Philadelphia office The Ault & Wiborg Co., manufacturers of printing inks, have entirely eliminated hand labor in connection with the shipping and delivering of ink to newspapers in Philadelphia. Not only has man power been done away with in Philadelphia, but also in the factory in Jersey City so far as shipments for Philadelphia are concerned.

Usually newspaper ink is shipped in drums weighing about 450 pounds each. These are filled at the factory in Jersey City and loaded on freight cars. At their destination they are unloaded on trucks and taken to the company's branch warehouses. The drums are then taken out as needed and hauled each day to the newspaper plant. Here the drums are emptied into the ink tanks of the newspaper's plant and the empty drums taken back to the warehouse and then reshipped.

But now all inks coming from the Ault & Wiborg factory to Philadelphia is handled in bulk. It is pumped into a tank car at Jersey City and shipped by rail to Philadelphia. Here the tank car is unloaded by gravity, the ink flowing down into a tank near the company's siding. Then it is pumped into overhead storage tanks. From these tanks the ink flows by gravity into a tank on the trailer. The trailer holds about 5,500 pounds of ink.

When loaded the trailer is taken to platform scales and the truck is unhitched and the trailer and load weighed. Then the truck backs into the trailer, off the scales, and then goes to the newspaper plant. Here the ink is pumped by a power pump mounted on the truck into

the storage tank of the newspaper. After unloading the trailer is driven on the same scales and weighed empty. This double weighing gives the net amount of ink delivered.

Several important economies and advantages have resulted from the use of this truck and trailer. There is no longer any question at all about the amount of ink delivered. Both parties accept the figures of the weighmaster of the platform scales. When drums were used there was always a difference in the "tare" stamped on the drum and the weight claimed by the newspaper, because of the quantity adhering to the drum after emptying.

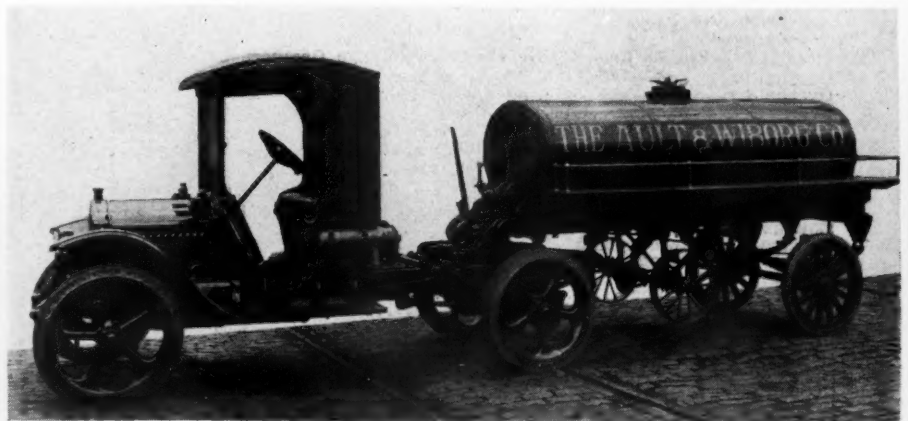
The newspapers are much better satisfied with the trailer delivery. The truck and trailer have been in use for about a year. During this time the equipment

has saved much money in the delivering of ink and has given the company the benefit of the greater satisfaction of its customers.

### Goodrich Cross-Word Booklet

The popularity of cross-word puzzles has been seized upon in a very unique and effective way from an advertising standpoint by The Goodrich Co. in a twenty-page booklet they have just released through their branches.

Eight very difficult puzzles are offered for solution in the booklet, which also shows on opposing pages different tires in the Goodrich line. The puzzles all contain the name of some Goodrich product either horizontally or vertically in their make-up.



The Substitution of Tank Cars for Drums Has Caused a Big Saving in Time and Money

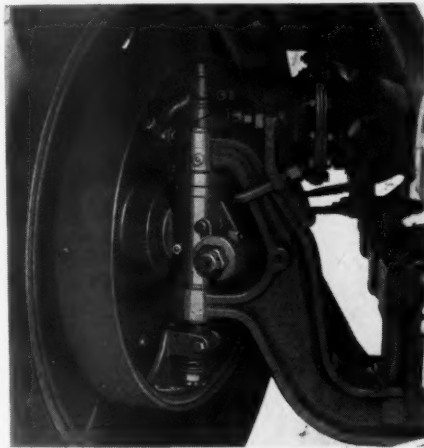
## New 27-Passenger Schacht Designed for High Speed Interurban Traffic

A SIX-CYLINDER, low hung, pneumatic-tired bus chassis, 27-passenger, designed for high speed interurban traffic, is the latest contribution of the G. A. Schacht Motor Truck Co., Cincinnati, Ohio. It is known as the Schacht "Super Safety" Bus, and was designed especially for passenger carrying service. This new bus has certain unusual features, the most important of which is the use of a gearset having eight forward and two reverse speeds. The transmission provides two speed ranges, the lower ratios from 4.75:1 to 1:1 and the higher ratios from 3.35:1 to 0.705:1. The top speed in the higher range is over-gear, permitting high speed without excessive engine speed.

The power plant is the new Wisconsin type-Z six-cylinder bus engine described in the November issue of Commercial Car Journal.

A stiff and low frame structure is a prominent feature of the design. The frame is a Parrish & Bingham product and has kicked-up side members which are formed from  $8\frac{3}{8} \times 2\frac{3}{4} \times \frac{1}{4}$  in. channels to which outriggers are attached. The side rails are joined by five nickel steel tubes brazed and pinned to suitable end castings which are riveted in place. Two additional cross members are used. One supports the forward end of the amidships gear-set and the other is located at the forward end of the rear springs. The latter is well gusseted and serves to support the air diaphragm housings which form a part of the braking system.

Mounted near the center of the chassis is a hand-operated propeller shaft brake, the anchorage for which is supported from one of the five tubular cross members which also carries the rear end of the gear-



Close-up Showing the Brake Assembly of the Front Wheel

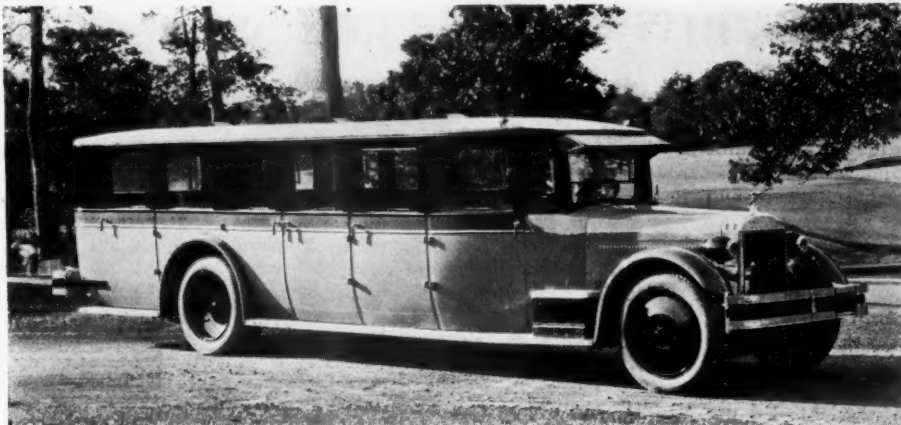
set. Beside this brake is the air reservoir, which is filled from a compressor mounted on the engine.

The frame is narrowed from the center forward and at its front end is attached to Gruss air springs. The I-section front axle is a Shuler product and is equipped with brakes designed for air operation.

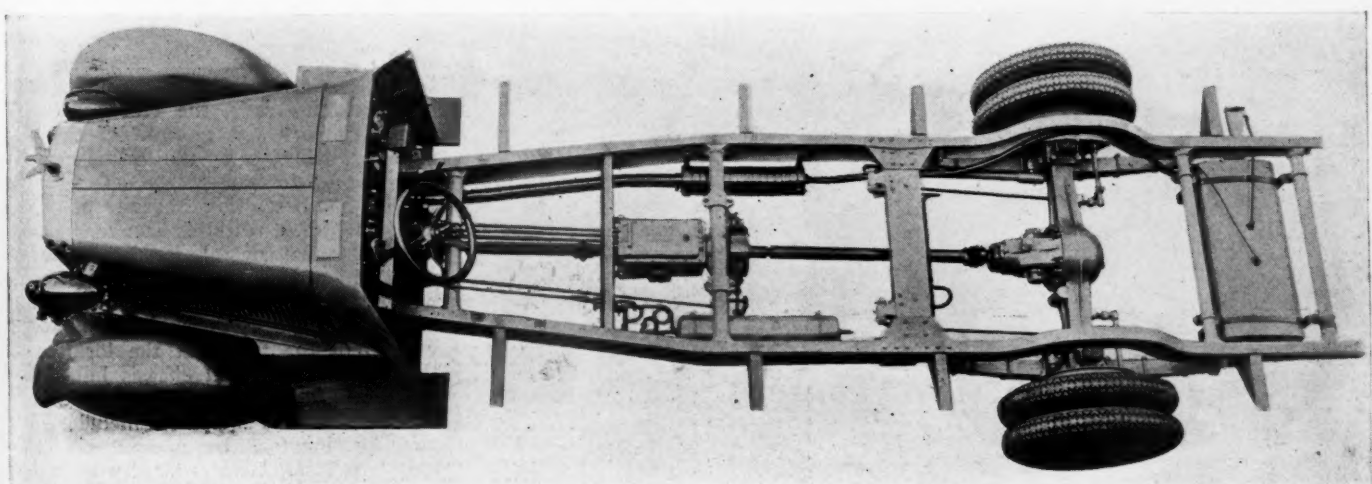
Housings for the air diaphragms which operate the front brakes are attached to brackets which in turn are fastened by clips to the upper portion of the yokes of the Elliot type axle ends. On the outer ends of the brake plungers are split wedges which straddle the elongation of the axle pivot pin and engage with tapered surfaces so that outward motion of the wedge forces these surfaces and connecting parts upward, thus applying the internal brake bands.

Rear brakes are operated by levers and pull rods actuated by the plungers of the air diaphragms, the housing of which are attached to the frame. These brakes are also of the expanding type. The total area of the brakes operated through the usual pedal controlling the Westinghouse air valve is given as 882 sq. in. As indicated above, the hand brake operates on the propeller shaft drum. It has a bearing area of 96 sq. in.

A model 1300K-3, double reduction, full-floating Wisconsin rear axle with 6 to 1 gears is employed. This axle carries dual Budd-Michelin disk wheels on which are mounted 36 x 6 in. pneumatic tires. The same size tires used on front wheels.



The Schacht Super Safety Bus is Replete With Features



Bird's-eye View of the New Schacht Safety Bus Chassis, Showing General Lay-out and Disposition of Units. It is Powered by a Six-Cylinder Engine and Equipped With Westinghouse Air Brakes on Front and Rear Wheels



Radius rods made from tubing formed after the fashion of the conventional drag link with ball ends are employed, but torque is taken by the rear springs. The forward ends of the radius rods are pivoted on brackets carried by the frame cross member which is just forward of the front end of the rear springs. The drive from the gearset is through a shaft fitted with two Blood-Brothers universal joints. The shaft connecting the front end of the gearset to the Fuller multiple disk clutch also has two universal joints.

Steering is by Ross cam and lever gear, mounted at the left side of the frame, with the column incline as in conventional practice. Gearset control levers are mounted in the center of the chassis frame and are connected to the gearset shifter forks by four tubular pull rods.

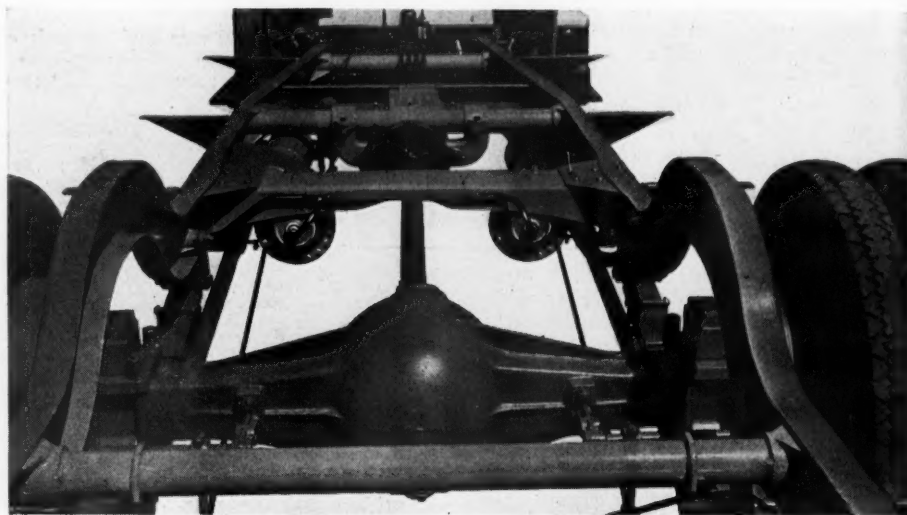
Cooling is effected by a Wheeler fin and tube type radiator core with cast aluminum top and bottom tanks, which give an effective appearance to the front of the vehicle. E & J special bus lamps are mounted on brackets which extend from the side members of the radiator. A Leece-Neville starting and lighting system with voltage regulator and a Robert Bosch magneto is used.

Fuel is fed to the Zenith carburetor by vacuum tank from 35-gal. supply tank, which is carried in a cradle between the

two rearmost cross members of the frame. An Alemite chassis lubricating system is provided.

The chassis has a 201 in. wheelbase and an overall length of 282 in. Overall width is 91 in. Front tread 67½ in. and rear tread 84¾ in. or 91¼ in. outside

tires. Turning radius is given as 33½ ft. and chassis weight with tanks filled as approximately 6,400 lbs., of which about 63 per cent is on rear wheels. Distance from dash to end of frame is 221½ in. and from dash to center of rear axle, 162½ in. This chassis lists at \$5,900.



Illustrating the Rear Axle, Arrangement of the Westinghouse Airbrake Chambers and Kick-up of the Frame Over the Rear Wheels

## Fisher Fast Freight New One and a Half Ton Speed Chassis

**L**OWER center of gravity and frame height, full pneumatic tire equipment, ample engine power and a broad range of speed, combine to make the new Fisher Fast Freight suitable for high speed road haulage, parcel delivery or the bus field. This chassis, which is the latest development of the Standard Truck Co., Detroit, is listed at \$1295 and has a wheelbase of 146 in. The load capacity is 3000 lbs.

A Continental 4¼ x 4½, model S-4, four-cylinder engine is used with a rear axle gear ratio which gives a maximum speed of 35-40 m. p. h.

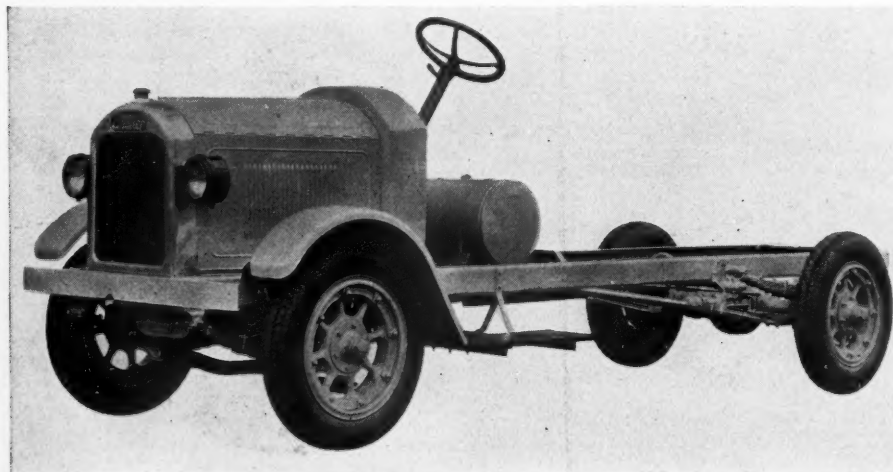
The frame is formed of parallel pressed steel side channels and three channel cross members reinforced with gussets. The front cross member also functions as a bumper and is reinforced by a wood bolster. Additional frame strength is provided by the conventional Standard step bracket construction and rear spring anchor bolts, which extend clear across the chassis.

The engine, multiple disk clutch and gear box are mounted in unison, three point suspended. Electric starting and lighting are standard, with battery ignition, although magneto equipment can be

provided at an additional cost of \$55. Lubrication is provided by a gear oil pump. A belt-driven fan and gear-driven water pump in conjunction with a continuous fin and tube radiator constitute the cooling system. The radiator core is housed by a cast aluminum shell which carries the head lamps.

Drive is transmitted to the rear axle through a two-piece propeller shaft. Enclosed mechanical universal joints are fitted at both ends of the two propeller shaft sections and the intermediate support is an S K F self-aligning bearing. The rear axle is full floating, banjo type, equipped with spiral bevel gears. External brakes on the rear wheels form the service braking equipment; the emergency brake is carried in back of the transmission. Radius rods, the rear centers of which are set well forward of the rear axle center-line, carry the torque reaction and driving thrust.

Left hand steering through a worm and half-worm wheel is standard equipment. Manual controls for the carburetor and ignition are located under the steering wheel. A welded cylindrical gasoline tank of 35 gals. capacity is mounted in saddles on top of the frame at the location of the driver's seat. All chassis lubrication points are fitted with pressure gun attachments. Standard equipment includes complete lighting facilities, pressed steel running boards and fenders fitted with aprons at the front end. This chassis will accommodate a 14 ft. bus body or 10 ft. commercial body.



Chassis of the 1½ ton Fisher Fast Freight. It Was Designed for High Speed Road Haulage, Parcel Delivery, or the Bus Field



## Details of the Philadelphia Gas-Electric Coach

**A**LTHOUGH there are quite a number of gas-electric rail cars in operation in different parts of the country, the two-motor, direct drive system used in the Philadelphia buses is entirely new. Thorough tests covering a nine-month period were made, to the complete satisfaction of the Philadelphia Rural Transit Company engineers, before bids on an order for 200 double-deck coaches were requested. The order was finally granted the Yellow Coach Mfg. Co., which company will attempt to discharge the order within the year. The General Electric Company is supplying the electrical units; Timken-Detroit Axle Company is furnishing the special rear axle assembly; and the power-plant is furnished by the Yellow-Sleeve Valve Engine Works.

Proponents of the gas-electric coach assert that simplicity of operation and



Typical of the Double-Deck Gas-Electric Bus to be Used in Philadelphia

Chassis and bodies are being built by the Yellow Coach Mfg. Co.; electrical units by the General Electric Co.; power plant by the Yellow-Sleeve Valve Engine Works, and the rear axle by the Timken-Detroit Axle Co.

smoothness of performance, which are inherent characteristics, reduce maintenance costs and increase the longevity of the coach making the ultimate cost of gas-electric lower than the gear-shift coach.

In the new system the transmission of power from the engine to the wheels employs features that are decidedly new in many respects. In place of the usual clutch and gear transmission a dynamo and two motors are employed, which connect direct to the engine. Power developed by the engine is converted into electrical energy by the generator, and is conducted to either or both of the motors, which are mounted parallel to each other amidships in the chassis. Transmission to the motors is controlled by a switch, more commonly known as the controller. Two propeller shafts, one for each wheel, and independent of each other, lead from the motors to the rear wheels. The rear end assembly departs from the conventional in that drive is independent in each wheel. This construction effects a self-compensating drive and obviates the losses of a mechanical differential.

Briefly the engine is employed as a constant source of power. Requirements of drive are met by altering the amount of electrical energy drawn from the generator. The system is so designed that

the current generated at any engine speed corresponds to a definite car speed. There is no surplus of electrical energy to dispose of by storing up. Consequently there is no need of a battery. All changes in voltage and ampere relations are automatically secured by the inherent characteristics of the generator itself. When starting, the generator provides a high current or amperage and a low voltage, which condition automatically and gradually reverses, voltage increasing and current decreasing, until normal running speed is attained. The generator output is substantially constant for all road conditions providing the necessary torque for acceleration or hill climbing without overloading the engine. Speed increases are so smooth and gradual as to be almost imperceptible. This characteristic makes the coach safer for passengers getting off and on, or standing in the aisle. There are no jolts and operation is quiet.

The single control accelerator pedal on the engine throttle permits the driver to keep his hands on the steering wheel at all times, except when using the emergency brake. The electric control is similar to the current-limit relay used in railway work with master controller. The driver cannot race the engine, nor stall it. The physical and mental fatigue resulting from incessant shifting of gears is generally considered of minor importance. It is, however, quite important. A mechanical bus making 180 miles per day on a 10 stop schedule with three shifts per start, would require a total of 5,400 shifts per day; the gas-electric bus requires none.

### Elk Manufacturing Company Expands

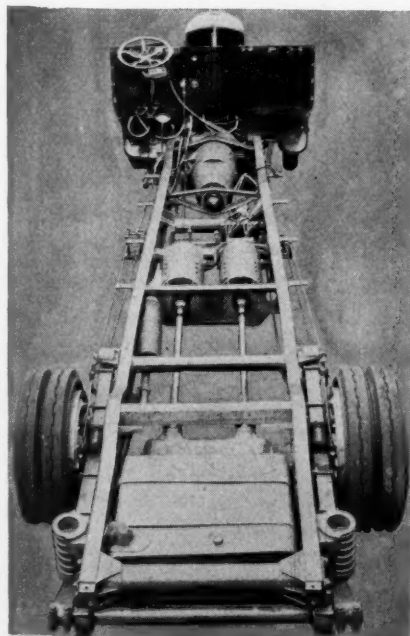
Announcement has just been made by Fred B. Johnson, president of the Elk Manufacturing Company, Los Angeles, Cal., that his concern is planning to construct a modern brick and concrete factory in the Central Manufacturing District here, for the manufacture of commercial truck bodies.

The factory is being specially designed for the economical manufacture of commercial truck bodies as well as special bodies for Ford and Chevrolet chassis. The building will be one story in height and so designed to permit future expansion.

The Elk Manufacturing Company is two years old, having been organized in November, 1922, at which time operations were started on a small scale. Later they moved from their original location to their present site at 5012 South Main Street. The proposed plant is the result of their outgrowing the Main Street location.

### Levene Services Signal

The Levene Motor Co. has taken over the entire parts and service business of the Signal Motor Truck Co., of Detroit, and has moved this business to its plant in Philadelphia. The Levene Co. will continue to give service on Signal Trucks to owners and dealers.



Showing Well-Balanced Disposition of Units

Note absence of controls; location of generator; mounting of two motors, two propeller shafts, general frame and spring construction.



# All about Electric Truck Construction

*This 64 page Book on Request*

## A Truck Dealers' Guide

Here's a book that answers the questions that have been forming in your mind regarding the electric truck and its possibilities on short-haul, frequent-stop routes—the most complete manual of electric truck construction ever printed.

*It tells* why electric trucks last two to five times as long as other vehicles. Why bodies on electrics last longer than on other vehicles.

It shows just where the electric truck is similar to the line you are now handling and where it is dissimilar—in selling and service.

It contains information on the various types and drives used in both the electric and the gasoline fields—points for and against each type of drive.

Tells about wood wheels and steel wheels and their effect on tire wear.

Tells other things that will be helpful to you in selling and servicing trucks.

Chockful of selling points of the electric truck versus the horse and wagon.

Handsomely bound, size 8½" x 11", 64 pages and cover. Printed in large, easily read type and illustrated with 63 illustrations. Altogether the most complete catalog ever issued by an electric truck manufacturer.

Write for your copy today—FREE on request.

**Ward Motor Vehicle Company**  
Mt. Vernon, N. Y.

# Ward Electrics





# EDITORIALS



## Knocking vs. Knowing

**K**NOCKING your competitor's proposition is no sales argument. There is no use of the salesman trying to sell the best truck in the world if he does not know why it is the best. He can only appreciate that fact when he knows how it compares in detail with any other make that the prospect introduces into the discussion.

As an operator gets more and more experience, he becomes as a buyer, to use a colloquialism, more "hard-boiled." The salesman always ought to have more knowledge about the truck business than the potential buyer, and nowadays the latter is usually well informed. The modern transport manager is a product of the hard school of experience. He has to be shown facts and figures to interest him. Also he is more given to comparisons. That is why dealers who are not ahead of the times are finding it increasingly difficult to get salesmen who are sticklers.

Truck selling now calls for a highly specialized knowledge, not only of current productions, but of the mistakes of yesterday.

If a salesman makes a claim, he must be able to substantiate it. Suppose for instance he claims that the engine of his truck has a big advantage in the matter of wear because of some special treatment of the cylinder block. The prospect retorts that so-and-so's tried that a couple of years ago and found it of no benefit. Is the salesman going to be stumped and quit or is he going to give chapter and verse of what really happened and why this treatment is different from the one mentioned by the prospect? This is a matter of vital importance to the sales manager, and shows why the casual salesman is often worse than useless. Truck salesmen must be provided with the proper information by the sales manager if they are to be 100 per cent efficient.

Periodically they should have a clear statement as to why the product they sell is better than that of their competitor. This is not for knocking purposes, but to provide a reasonable answer to the prospect who, nine times out of ten, will cite some other make of truck as having the same or better features. The salesman must know more than the prospect, and it is the sales manager's job to see that he does so.

## Incomplete Sales Literature

**Q**UITE a bit of sales literature is issued during the course of a year by accessory and parts manufacturers, in all forms from the envelope stuffer to handsomely gotten up catalogs. In perusing this sales literature it is surprising to find the unconcern some manufacturers display in regards to describing the adaptability of their product to the motor truck and motor bus.

Naturally some products are designed particularly for passenger car service and it would be useless to recommend them to motor truck dealer or owner, but there are many accessories on the market which are just as applicable to the truck as to the passenger car. Some manufacturers do not seem to realize this, principally because they are so used to thinking of trucks as heavy duty jobs, forgetting entirely that the biggest percentage of motor driven vehicles on the highways are of the light delivery type.

Many cases have come to our attention where a careful reading of the literature issued by the manufacturer failed to indicate that the product in question was designed for use on commercial cars. However, subsequent correspondence with the manufacturer produced the information that the device in question "certainly was being sold for commercial car service and that such and such companies are adopting the device as standard equipment."

But one wouldn't know that from the way the circular or catalog reads.

## Eventually or Now

**T**HE decision of the Boston & Maine Railway to abandon about a 1000 miles of its unprofitable branch lines and to substitute motor trucks and motor buses does not come as a surprise to those who are making a close study of transportation economics. No business concern can keep on piling up the deficit of one department against another without eventually breaking down the profitable department. Railroads cannot be run continuously without a profit. The action of the Boston & Maine officials indicates good judgment. By substituting motor trucks and buses not only will the monetary loss be diminished but a more flexible and better service will be rendered to the public.

# News of the Trade

## Keen Interest Exhibited by Contractors at Road Show

**Convention and Exhibit Voted a Big Success. Delegates Discuss Construction, Traffic and Transportation**

Road construction from the scientific and practical standpoints, traffic problems and motor transportation held the center of the stage in Chicago at the annual convention of the American Road Builders' Association. The convention held forth at Congress Hotel the first three days of the week, about 500 delegates being present and with J. H. Crawford, of Washington, D. C. presiding.

In connection with the convention was a large exhibition of road construction machinery at the Coliseum, a display open to the public and viewed by many thousands of people despite its technical nature. Much of the equipment shown is motorized and there were a number of

new introductions of interest to the road engineer. Those in charge of the exhibits reported high interest on the part of contractors who turned out in good numbers. The contractors were generally optimistic respecting the 1925 outlook for road building.

One of the principal speakers before the convention was Thomas H. McDonald, chief of the bureau of public roads at Washington. "Traffic has developed overnight," he declared. "In many areas of dense population the utilization of highway transport has been slowed down and the normal and entirely justifiable use of the motor vehicle definitely curtailed."

Mr. McDonald said that the chief benefit of the Federal Aid System has been to establish a plan for the future.

The Lincoln Highway Association has moved its offices to B-147 General Motors Bldg., Detroit, Michigan.

## Continental Motors Shows a Substantial 1924 Increase

**After Meeting Federal Tax Requirements the Net Profits for the Past Year Totals \$2,502,522, a Gain of 30 Per Cent**

The Continental Motors Corporation, in its annual statement to stockholders just issued, shows a net profit before Federal taxes of \$2,870,022.76 for the fiscal year ending October 31, 1924, a substantial increase over the figures of the previous year. To meet Federal tax requirements \$367,500 was deducted leaving a balance of \$2,502,522.76 as net profits for the year, which is equivalent to \$1.42 per share on the 1,760,845 shares of no par value common stock outstanding. This compares with net earnings of \$1,937,453.25 in the previous year, a gain of 30 per cent and conclusively justifies the dividend action taken by the company during the past year.

## COMING EVENTS

### CONVENTIONS

**Michigan Automotive Trade Assn.**—18th annual convention to be held in Detroit, Mich., January 21, 1925. W. D. Edendurn, Mgr., Hotel Addison, Detroit.

**Texas Automotive Dealers Assn.**—Annual convention to be held in March, 1925, at Austin, Texas. W. A. Williams, Mgr., San Antonio.

### SHOWS

**Albany, N. Y., Feb. 21 to 28, 1925**—15th annual show to be held in the 10th Infantry Armory (42,000 sq. ft.), under the direction of the Albany Automobile Dealers Assn., Inc. Passenger cars, trucks and accessories. J. B. Wood, Treas., care of Chamber of Commerce.

**Boston, Mass., March 7 to 14, 1925**—23d annual show to be given under the auspices of the Boston Automobile Dealers Assn., Inc., at the Mechanics Bldg. (125,000 sq. ft.). Passenger cars, trucks, tractors and automotive equipment. Chester I. Campbell, Mgr., 329 Park Sq. Bldg.

**Buffalo, N. Y., January 10 to 17, 1925**—Buffalo Automobile Dealers Assn. Twenty-third annual passenger car, truck, tractor and accessory show will be held in the 174th Regiment Armory (55,000 sq. ft.). Carlton C. Proctor, show manager. Address, Room No. 1 Mezzanine floor, Hotel Statler.

**Chattanooga, Tenn., February 2 to 7, 1925**—1st annual spring show to be held in the Soldiers & Sailors Memorial Auditorium under the direction of the Chattanooga Automotive Trades Association. Passenger cars, trucks and accessories. J. R. Scott, secretary, 809½ Broad St.

**Chicago, Ill., January 23 to 31, 1925**—National automobile show to be held under the auspices of the National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.

**Cleveland, Ohio, January 17-24, 1925**—Automobile Manufacturers and Dealers Assn. Twenty-third annual passenger car and truck show, Public Auditorium, Cleveland, Ohio. Herbert Buckman, manager.

**Columbus, Ohio, January 12 to 17, 1925**—20th semi-annual show to be held in the Automobile Building, State Fair Grounds (105,000 sq. ft.), under the direction of The Columbus Automobile Dealers Co. Passenger cars, trucks and accessories. Anson B. Coates, manager, 215 N. 4th St.

**Detroit, Mich., January 17 to 24, 1925**—24th annual show to be held at Convention Hall,

under the auspices of the Detroit Auto Dealers Assn. Passenger cars, trucks and automotive supplies. H. H. Stuart, Mgr.

**Indianapolis, Ind., March 2 to 7, 1925**—14th annual show to be held in the Automobile Building (84,000 sq. ft.), under the direction of the Indianapolis Auto Trade Association. Passenger cars, trucks, accessories, tops and bodies. John Orman, manager, 338 N. Delaware St.

**Kansas City, Mo., February 7 to 14, 1925**—18th annual automobile show under the auspices of the Kansas City Car Dealers Assn. will be held at the American Royal Bldg. (300,000 sq. ft.). Passenger cars, trucks, tractors, and automotive equipment. Geo. A. Bond, show mgr., Firestone Bldg., Kansas City.

**Milwaukee, Wis., January 17 to 24, 1925**—17th annual show to be held in Auditorium under the direction of Milwaukee Automotive Dealers Association. Passenger cars, trucks, tractors and accessories. Bart J. Ruddle, Mgr., 319 Brumder Bldg.

**Minneapolis, Minn., January 31 to February 7, 1925**—18th annual show to be held in the Overland Building (185,000 sq. ft.), under the direction of the Minneapolis Automobile Trade Ass'n. Passenger cars, trucks, accessories, radio and industrial equipment.

**Newark, N. J., January 10 to 17, 1925**—18th annual automobile show to be held at the 113th Infantry Armory (30,000 sq. ft.), under the auspices of the Newark Automotive Dealers. Passenger cars, trucks and automotive equipment. Claude E. Holgate, Mgr., Chamber of Commerce Bldg.

**Omaha, Neb., February 16 to 21, 1925**—20th annual automobile show to be held at the Auditorium. Passenger cars, trucks and automotive equipment. A. B. Waugh, Mgr.

**Portland, Ore., Jan. 31 to Feb. 7, 1925**—17th annual show to be held in the Multnomah Block (110,000 sq. ft.), under the direction of the Automobile Dealers Association of Portland, Ore., Inc. Passenger cars, trucks, tractors, accessories and aeroplanes. Ralph J. Staehli, 16 Myler Bldg., 84 West Park Street.

**Portland, Maine, Feb. 23 to 28, 1925**—10th annual show to be held in the Portland Exposition Bldg. (60,000 sq. ft.), under the direction of the Portland Automobile Dealers Association. Passenger cars, trucks, tractors, accessories, adding machines, office equipment, oils and grease. Howard B. Chandler, Mgr., 3 Park Ave.

**Saint Paul, Minn., January 31-February 7, 1925.** Auto Trades Assn. Annual passenger car, truck and tractor show. Overland Bldg., Saint Paul, Minn. W. C. Wilmot, manager.

**San Bernardino, Cal., Feb. 19 to Mar. 1, 1925**—The Fifteenth National Orange Show will be held in the National Orange Show Bldg. (45,000 sq. ft.). The show will include passenger cars, trucks, tractors, and accessories. R. H. Mack, show manager, with headquarters, 215 Chamber of Commerce Bldg.

**San Francisco, Cal., February 21-28, 1925**—Motor Car Dealers Assn. Ninth annual passenger car, truck and tractor show, Exposition Auditorium, San Francisco, Cal. G. A. Wahlgren, manager.

**Scranton, Pa., January 29 to 31, 1925**—17th annual commercial car show under the auspices of the Scranton Motor Trades Assn. will be held in the Armory. Trucks, tractors and automotive equipment. Hugh B. Andrews, show mgr., Board of Trade Bldg.

**Syracuse, N. Y., February 2-7, 1925**—Syracuse Automobile Dealers Assn., Inc. Seventeenth annual passenger car, truck and accessory show, State Armory, Syracuse, N. Y. C. H. Hayes, manager.

**Toledo, Ohio, February 2 to 7, 1925**—14th annual show to be held in the Terminal Building, under the direction of the Toledo Automotive Trades Association. Passenger cars, trucks, tractors, accessories and radios. Show under the management of H. V. Buelow and T. J. Cooper, 925 Jefferson Ave.

**Washington, D. C., January 24 to 31, 1925**—5th annual show of the Washington Automotive Trade Association to be held at Convention Hall. Passenger cars, trucks, accessories. Rudolph Jose, show mgr., 1138 Connecticut Ave.

### N. A. D. A. MEETINGS

**January 26 and 29, 1925**—8th annual convention to be held at Hotel La Salle, Chicago. Lynn M. Shaw, Asst. Gen. Mgr., 339 N. Grand Ave., St. Louis, Mo.

### S. A. E. MEETINGS

**January 19 to 23, 1925**—Annual Convention at Detroit, Mich., General Motors Bldg.

**January 21, 1925**—Annual Carnival scheduled for Detroit, Mich.

**June 16-19, 1925**—Summer Meeting, White Sulphur Springs, Greenbrier Hotel.



## Bendix and Perrot Merged in Chicago

### A \$3,000,000 Corporation is Organized to Take Over the Two Companies

A \$3,000,000 corporation to control the rights to the patents of the Bendix drive and of the Bendix Perrot control for the Bendix four-wheel brake has been formed through the merger of the Perrot Brake Corp. and the Bendix Engineering Works into the Bendix Corp., with headquarters in this city. The Perrot Brake Corp. heretofore has controlled American rights to the Perrot patents and the Bendix Engineering Works has controlled the patent rights of the Bendix drive. Vincent Bendix, originator and patentee of the Bendix drive, will be president of the new corporation, and J. L. Price, formerly vice-president of the Chicago Pneumatic Tool Co., will be vice-president and general manager.

The Bendix four-wheel brake will be manufactured by the Bendix Brake Co. of South Bend, a subsidiary company to the Bendix Corp. Manufacturing facilities at the South Bend plant will be greatly increased.

## Commission Encourages Railroad to Take Over Buses

In its report filed with the governor and legislature the New Hampshire public service commission declared the railroads should be permitted to try other methods, such as the use of motor buses and trucks, to relieve them of the burden imposed by unprofitable branch lines.

In referring to the recent proposal of the Boston & Maine to substitute buses for the steam service the commission said "those communities which cannot support steam train service can be accommodated adequately by the operation of motor trucks and motor buses throughout the year," with the possible exception of the time when "the frost is coming out of the ground."

The commission, after suggesting the possible reduction of cars and crews on trains and the substitution of unit cars with gasoline as other means of reducing costs, said the latter experiments had not been entirely successful. It expressed the opinion that at any rate the railroads should be permitted to try out these methods. It added that if legislation is necessary to enable the railroads to do this it recommended such legislation with proper safeguards to protect the adequacy of the service.

Reasons for the conditions involving these branch lines, many of which are "being operated at a financial loss and as a burden on the rest of the system" were said to be higher costs and automobile competition.

For short journeys, the commission stated, the public prefers the automobile to the passenger train and for short haul the shipper prefers the motor truck to the freight train.

## Jersey to Place New Bus Specifications Into Effect

Specifications applicable to motor buses within the jurisdiction of the New Jersey Public Utilities Commission have been promulgated by the board. With one exception, relating to emergency doors, the subject of an order issued Dec. 16 last, the new regulations will be applied to all buses placed in operation hereafter, whether as substitutes for existing buses or otherwise.

The emergency door provision covered by the board's previous order is applicable to all buses under its jurisdiction and the regulation must be made effective within 90 days. The new specifications are the result of a study of the subject made at the instance of the commission and agree in many respects with those formulated by the Motor Coach Committee of the Society of Automotive Engineers.



Mark A. Smith

Who has recently been appointed district representative of the Yellow Coach Manufacturing Co. Mr. Smith will travel eastern Pennsylvania, Delaware, Maryland and District of Columbia. He was formerly connected with the Midwest Engine Co., the Ace Motor Coach Co. and Royal Motor Coach Co., and until recently Consultant for Allen, Lewis & Co., of New York.

## Good Roads Reduce Road Maintenance

### Motor Vehicle Fees Should be Devoted to Highway Purposes

A. J. Brosseau, director of the N. A. C. C., at the recent Motor Rodeo dinner advocated that all motor vehicle fees should be devoted to highway purposes, and that the State should be the sole motor vehicle taxing body.

"The saving in operating cost to the motor vehicle user who travels over an improved highway," Mr. Brosseau said, "is more than enough to maintain the highway so that in effect the user who agrees to maintain it reduces his expenses enough when he travels over an improved highway so that it doesn't cost him a cent."

"On this basis," he stated, "the motor vehicle should pay for all highway maintenance and in some cases, also pay part of the construction cost."

"All special taxes on automobile users," he stated, "should be devoted to highway purposes, whether for maintenance, reconstruction, or construction, and expended under the supervision of the State highway department. The State should be the sole taxing agency."

Roy D. Chapin, chairman of the committee, presided at the dinner. He told the one hundred guests, who included editors, writers and publishers interested in highway questions, that the present year marks the real beginning of motor bus transportation, and the beginning of the safer highway.

Thomas H. MacDonald, chief of the United States Bureau of Public Roads, related the steps that are being taken in Chicago to eliminate the "No Man's Land," that exists between city and rural traffic.

## Post Office to Have Over \$15,000,000 for Motor Equipment

Two supply bills for federal departments, containing items of interest to the automobile industry, were passed this week by the Senate. The first of these is the agricultural bill providing a total of \$124,788,000 for the department of which \$82,951 is to be devoted to highway research construction work. A separate item, to be administered by the Bureau of Roads, under the Department of Agriculture, known as the Dowell bill, containing a total of \$165,000,000 for road construction in 1926 and 1927 was passed last week by the Senate.

The second measure is the Post Office bill which contains a total of \$763,309,000 of which \$2,750,000 is for the air service for the purchase of new engines, planes, etc. For this purpose in 1925 a sum of \$2,600,000 was provided by Congress. A sum of \$15,400,000 was carried in the measure for the use of the automotive section of the Post Office Department, for maintenance of mail trucks, gasoline, supplies, etc. The 1926 appropriation is the same as that of 1925 for the maintenance of the automotive section.

U. S. Department of Commerce Production Figures  
(Number of Machines)

	Passenger Cars			Trucks		
	1922	1923	1924	1922	1923	1924
January	81,696	223,822	287,353	9,596	19,732	28,922
February	109,171	254,782	336,374	13,360	22,173	31,151
March	152,962	319,789	348,356	20,036	35,284	34,109
April	197,224	344,661	337,045	22,665	38,085	36,154
May	232,462	350,460	279,439	24,120	43,730	33,374
June	263,053	337,442	217,927	26,354	41,173	27,863
July	225,103	297,413	237,652	22,083	30,692	25,224
August	249,498	314,431	251,631	24,711	30,872	27,484
September	187,711	298,964	257,947	19,495	28,578	30,061
October	217,532	335,041	257,900	21,824	30,139	31,433
November	215,362	284,939	.....	21,967	28,073	26,884
December	208,016	275,472	.....	20,394	27,762	*27,000

\* Estimated

## New York Central to Expand Trucking Operations

**Woodruff Outlines Railroads Experience. Experts to Study Operating Costs. Fageol Predicts Buses in Every Town of 1500**

Expansion of the motor truck operations of the New York Central Railroad was predicted by G. C. Woodruff, General Freight Agent of the road, at the Motor Truck Convention.

Another feature of the meeting was the recommendation that a committee of experts from both manufacturers and operators of commercial vehicles would be appointed to get basic facts of motor truck cost operation and to outline a cost accounting system.

Mr. Gordon Lee speaking for F. R. Fageol, of the Fageol Motors Company, predicted the use of motor buses in every city in the United States of 1500 population or over.

"Based on nearly two years of experimental undertakings" said Mr. Woodruff "I feel it can be safely said that a place, and a very large place, has been found for the motor truck as a useful and highly appreciated adjunct of the railroad, particularly of the railroad of which I am connected for we feel that only a beginning has been made and that what has been done is but an indication of what can and probably will be done in the relatively near future."

Mr. Woodruff pointed out that the Harlem Division in the Hudson Division near New York the motor truck is being used to save freight train operation at the same time giving improved service on all the stations affected.

The railroad now has 50 separate trucking activities under way. These are being handled by established trucking concerns on a contract basis.

"Today in the State of California," Mr. Fageol's address noted, "There is perhaps not a city or town of 1500 population or over that is not served by inter-urban motor bus transportation."

## Amalgamated Motors Discharges Its Last Obligation

Back taxes on the Northway property were cleaned up in full when P. H. Hansl, president of the Amalgamated Motors Corp., handed the tax collector a certified check for \$70,344.56, thereby clearing up practically all of the old indebtedness of the companies. Altogether obligations to the amount of \$275,000 have been discharged by the new interests that took over control of the property less than a year ago and it is understood that the company faces the future in excellent financial condition and with large cash balances in bank.

In concluding this transaction Mr. Hansl announced that the Rutenber motor has been taken over as a part of the amalgamated combination, including physical assets amounting to more than \$600,000. In addition to the Rutenber plant at Marion, Ind., and \$150,000 worth

of service parts acquired as a part of the deal the company also secures 3686 finished motors which will be used as the power plant for the new six-cylinder speed truck known as the Rocket, which is now being built at the local plant.

The Rutenber motor is one of the earliest six-cylinder engines built in the country and has been used in such automobile products as Paige, Overland, Roamer and American cars. When the present supply of finished motors has been exhausted it is planned to continue their production at the Northway plant.

The mayor and city commission of Leavenworth, Kan., have approved an ordinance discarding the street car system and providing for bus lines. The change is being made this month. The trolleys, which were of the Toonerville variety, will be relegated to the junk heap.

## Continued Use of Horses Responsible for Congestion

**General Butler of Philadelphia Now After Dobbin. Drastic Preventative Measures to Relieve Areas Imperative**

Restrictions of horse drawn vehicles will form an important feature in recommendations to Council by Wm. B. Mills, Superintendent of Police and head of the Police Traffic Board created last April by General Butler, head of the Department of Public Safety of Philadelphia.

"A balky horse now can cause congestion for three or four blocks," says Superintendent Mills, "and we have reached the point where we either must have central streets filled with blocks of congested traffic or else take drastic preventative measures."

## PRELIMINARY FACTS AND FIGURES OF THE AUTOMOBILE INDUSTRY FOR 1924

By Alfred Reeves, General Manager  
National Automobile Chamber of Commerce

### PRODUCTION

Cars and trucks .....	3,650,000
Cars .....	3,280,000
Trucks .....	370,000
Percentage decrease from 1923 .....	10%
Percentage increase over 1922 .....	38%
Production of closed cars .....	1,300,000
Per cent closed cars .....	39%
Total wholesale value of cars .....	\$1,994,540,000
Total wholesale value of trucks .....	\$284,556,000
Total wholesale value of cars and trucks .....	\$2,279,096,000
Tire production .....	45,000,000
Wholesale value of motor vehicle tire business .....	\$627,697,000
Total wholesale value of parts and accessories, exclusive of tires .....	\$872,838,000
Average retail price of car, 1924 .....	\$814
Average retail price of truck, 1924 .....	\$1,026
Number of persons employed in motor vehicle and allied lines .....	3,105,000
Special Federal excise taxes paid to U. S. Government by automobile industry in 1924 .....	\$144,000,000

### REGISTRATION

Motor vehicles registered in U. S. (approx.) .....	17,000,000
Motor cars .....	15,200,000
Motor trucks .....	1,800,000
World registration of motor vehicles .....	19,500,000
Per cent of world registration owned by U. S. A. ....	87%
Motor vehicle registration on farms .....	4,600,000
Motor cars .....	4,175,000
Motor trucks .....	425,000
Miles of improved highway .....	455,000
Total miles of highways in U. S. ....	2,941,294

### MOTOR BUS AND MOTOR TRUCK

Number of motor buses produced .....	10,000
Number of consolidated schools using motor transportation ..	13,037
Number of street railways using motor buses .....	168
Number of buses used by street railways .....	2,500
Number of railroads using motor vehicles on short lines ..	174
Number of railroads using motor trucks as part of shipping service .....	33

### MOTOR VEHICLE RETAIL BUSINESS IN U. S.

Total car and truck dealers .....	50,512
Public garages .....	59,989
Service stations and repair shops .....	67,828
Supply Stores .....	64,233



## Philadelphia Assn. Moves for Reduced Taxes

**The Entire Organization Which Includes, Distributors, Makers, Owners and Operators Acted as One**

A movement to secure a reduction by the 1925 State Legislature of all automobile taxes was started at the last meeting of the Motor Truck Assn. of Phila.

That organization, including a large number of motor truck distributors, manufacturers, owners and operators of trucks, as well as representatives from affiliated lines of business, unanimously adopted the following resolution:

"Resolved, that it is the sentiment of this meeting that the license fees of all motor vehicles be reduced, and that such reduction should be in the same proportion on all such vehicles; Further Resolved, that this Association co-operate with the other automotive associations in any movement to bring about such reduction, and the officers in conjunction with the Legislative Committee of this Association be and they are duly authorized to take any steps they may deem advisable in the premises."

The meeting was told that in 1923 automobile license fees brought the state \$16,000,000, and in 1924, they would total \$20,000,000—an increase of 25 per cent. This, it was pointed out, seemed to be out of proportion to the actual needs of the state and of taxes received from other sources.

## Ford Pays Employee Investors 14 Per Cent

Ford Investment Certificates, which are available only to employees of the Ford Motor Company, will pay a return of 14 per cent for the year 1924.

The guaranteed annual rate of interest on the certificates is 6 per cent. Special returns in both the first six month period, ending June 30, and in the second period ending Dec. 31st, increased the interest rate 8 per cent, making the total for the year 14 per cent.

Payment of interest was made immediately after January 1, and employees who were investors in the certificates received interest due them in connection with the payment of wages.

## First Exclusive Truck Highway to be Built

New Jersey officials estimate that the cost of an exclusive truck highway which they contemplate building will be \$12,000,000. It will be thirteen miles long and will connect Newark and Elizabeth with the Jersey City entrance to and exit from the Hudson River vehicular tunnel. Part of this highway will be built through a covered cut.

The New Jersey State Highway Commission and the City Commissioners of Jersey City have reached an agreement to that effect.

Surveys have all been made and the State Highway Board will ask bids to be opened soon after the first of the year. Work is expected to start in the spring

and it is expected the highway will be ready for use when the vehicular tunnel is completed in 1926.

The covered cut is designed to carry traffic quickly from the tunnel to the outskirts of Jersey City. The roof of the cut alone will cost about \$1,000,000.

## Meetings of Motor Truck Industries, Inc., to Rotate from Plant to Plant

Regular monthly meetings of Motor Truck Industries, Inc., will be held in the future at the plants of the member companies in a regular order of rotation. The plan is a marked departure from the former method of holding meetings and is designed to create the greatest possible co-operation between members and to make for renewed association activity.

## What Good is Vision, Anyway?

**Sixteen out of every 100 drivers of motor vehicles cross a railroad track without looking either to the right or the left.**

Such is the declaration of the Department of Safety of the Baltimore and Ohio Railroad, which has just completed a nine-months' survey of road crossings. The figures showed that out of 2,185,081 drivers approaching B. & O. crossings, 351,444, or 16 per cent, failed to exercise the precaution of looking in both directions before crossing the tracks.

Eighty-three per cent of the highway crossing accidents during the first nine months of this year, occurred where vision of the tracks was unobstructed, the Department found.

The association which comprises many of the leading truck and bus manufacturing companies as well as a majority of leading unit parts makers held its January meeting under the new plan at the Garford Motor Truck Co. plant, Lima, Ohio, on the fourteenth. Each meeting in the future will be scheduled at a different plant, the directors naming the rotation. Under the plan meetings may be held in cities as far east as plainfield, N. J., at the Spicer Mfg. Corp., and as far west as Los Angeles, the home of Moreland Motor Truck Co.

The decision to bring the meetings to the different plants of members was given the unanimous approval of directors at their meeting this week. Not only will association interest be greatly stimulated, but by making all members acquainted at first hand with the plants and processes of their associates the greatest co-operation will be achieved, directors declare. Visiting the plants, members will be given information on any details of its operation and systems as they desire and members of the factory personnel will be called in to the meetings to give additional information.

## Altree Replaces Broadwell on M. & A. M. A. Board

**Press of Business Caused Mr. Broadwell's Resignation. He Had Been Active Since 1915**

A. H. D. Altree, vice-president of the American Bosch Magneto Corp., was elected a director of the Motor & Accessory Manufacturer's Association at a recent meeting of the Board, to take the place left vacant by the resignation of E. H. Broadwell, vice-president of the Fisk Rubber Company. Press of his company's business caused Mr. Broadwell's resignation.

The new director has been with the Bosch company for many years, and has been very active in the credit work of the M. & A. M. A.

Mr. Broadwell, the retiring director, has been a leader in the M. & A. M. A. activities for almost a decade. He served as a director from 1915 to 1921, when he was elected president. In 1922 he was re-elected to the presidential chair, and since 1923 has again had a place on the board of directors.

## Century Takes Over Defiance

The Century Motor Truck Co., Defiance, O., recently took over the buildings, real estate, machinery equipment, goodwill, service and general business of the Defiance Motor Truck Co., for the purpose of perpetuating the business of the old company.

In addition to Century's line of trucks, Defiance models are also being built. The latest model of the company is a 1½ ton chassis known as Model A and selling complete with body and cab at \$985. It is obtainable in wheelbases of from 128-in. to 160-in.

## Detroit Motor Valve Changes Name

A change in the name of the Detroit Motor Valve Co. to the James Motor Valve Co. became effective January 1, 1925. In deciding to change the name, directors of the company realized that a closer connection between the trade name of its product, James Valves, and the company itself was desirable from a merchandising standpoint. No other change in the company's policy will be made.

## Heil Bodies and Hoists

This is the name of the new catalog recently put out by the Heil Co., Milwaukee, Wis. In the compilation of this catalog it has been the endeavor of the Heil Company to make it as complete as possible in its treatment of dumping equipment for motor trucks. The booklet is well illustrated and presents all necessary details simply tabulated for easy reference. Six of the twenty-eight pages are devoted entirely to Heil Hoists: Hydro, Mechanical, Hi-Lift, Vertical Hand Hoist, and Underneath Hand Hoist.

## Michigan Gas Tax Program Not Opposed

### Declare That Trucks Should Pay More

Proposed changes in the Michigan license law whereby the fees would be fixed entirely on a weight basis and the horsepower rating eliminated, were endorsed this week in a letter to the secretary of state from a committee of automobile manufacturers and officers of the State and Detroit dealer association. The committee further declared that it is not opposed to a gas tax provided the revenue is used to reduce the license fee.

In taking this stand the committee declares that it is unreservedly for the continuance of the State highway program as outlined by State officials and insists that no interference with this be tolerated.

All money derived from license fees and gas tax should be used for no other purpose than highway building and maintenance, the committee declares. The State would have available about \$10,000,000 for its yearly building program which the committee feels is more than justifiable and in fact imperative.

In stating its favor of a change to a fee based entirely on weight, the committee declares its belief that trucks should be required to pay more per hundred-weight than passenger cars. The committee calls attention to the fact that small cars are now paying at the rate of 70 cents per cwt., and if all other motor vehicles in the State were made to pay on the same basis, not more than 40 per cent would pay more than at the present time.

## Eisemann Acquires Duplex Automotive Business

Of unusual interest is the announcement by the Eisemann Magneto Corp. that arrangements have been completed for the acquisition of the automotive business of the Duplex Engine Governor Co.

The entire stock of raw and finished materials, special machinery and facilities for manufacture, have been transferred to the Eisemann plant, and it is expected that but a slight interruption in production will occur.

Both the well-known Simplex and Duplex models will be continued. Production is being organized and plans made for marketing a new developed Mercury Turbine Governor very soon.

## Personals

Fred M. Andrew has severed his connection with the Eisemann Magneto Corp., Brooklyn, where he served as an engineer. Plans for the future are as yet unannounced.

Fred Barker, Jr., will take active part in the development of the accounts handled by the Whittemore Co. in Chicago territory. Among the accounts are: The Ferry Cap & Set Screw Co., the Vlichek Tool Co. and the Cushman Chuck Co.

E. H. Broadwell, vice-president of the Fisk Rubber Co., has resigned as a director of the M. A. M. A. due to the pressure of other business. He is succeeded by A. H. D. Altree, vice-president of the American Bosch Corp. Mr. Broadwell has been a director of the association for a number of years and was its president in 1922 and 1923.

George H. Brown, formerly sales manager of the Mather Spring Co., has become distributor for the Gabriel Snubber Co. in the St. Louis territory.

E. P. Chalfant, chairman of the board of the Gill Manufacturing Co., was elected president of the M. A. M. A. at the first meeting of the new Board of Directors held in New York this month. He succeeds G. Brewer Griffin, manager of the Automotive Division of the Westinghouse Electric & Mfg. Co., who remains a member of the board.

H. M. Cree, well-known to the jobbing trade of the Southwest, has been appointed representative of the Cincinnati Ball Crank Co. for Texas and Oklahoma.

Dr. A. Johnson, dean of the college of engineering, University of Maryland, was re-elected chairman of the Highway Research Board of the National Research Council.

E. C. Lowney, formerly affiliated with the Firestone Tire & Rubber Co., recently joined the India Tire & Rubber Co., where he will be associated with the treasurer in supervising credits.

Joseph H. McDuffee was recently appointed assistant to the vice-president of Prest-O-Lite, Inc. His time will be devoted to the sale of batteries to vehicle manufacturers for original equipment. Mr. McDuffee is one of the pioneers of the industry, having entered it in 1899.

Carl Parker has been appointed head of the Bus & Taxicab Division of the Reo Motor Car Co., which newly organized department has transferred its offices to the bus plant.

J. L. Price is now vice-president and general manager of the newly organized Bendix Corp., Chicago, and president and general manager of the Bendix Brake Co., South Bend, Ind., a subsidiary of the Bendix Corp. Mr. Price was formerly vice president and treasurer of the Chicago Pneumatic Tool Co.

H. J. Quirk has taken active charge of the first branch office to be established by the Credit Department of the Motor and Accessory Manufacturers' Association, which is opening quarters in the first National Bank Building, Detroit. Mr. Quirk was formerly assistant treasurer of the Standard Steel & Bearings Co., Inc.

A. T. Rankin has joined the sales force of the Oakes Co., Indianapolis. He was formerly territorial representative of the Amco Manufacturing Co.

Anton S. Rosing has been appointed publicity manager of the Armco Culvert & Flume Manufacturers' Association, Middletown, Ohio. He was formerly connected with the Portland Cement Association, Chicago, in a similar capacity.

Francis C. Russell has been appointed manager of the Rochester branch of the North East Service Co., succeeding G. A. Johnson, who is to take charge of the New York branch.

E. L. Schmock was recently appointed sales manager of the American Tire & Rubber Co., Akron, Ohio.

Otto A. Stahl, formerly of the New York branch of the General Motors Truck Corp., has been appointed president and general manager of the company to succeed W. L. Day. Mr. Day will continue as vice-president and member of operation committee of the company at the request of President Alfred P. Sloan, Jr., of General Motors Corp.

S. T. Thompson, secretary and general manager of the Duplex Engine Governor Co., Inc., has been elected vice-president of the Duplex Condenser and Radio Corp. Mr. Thompson, in his new capacity, will continue to have complete charge of the factory operations of the new company.

Allen D. Turner has been appointed manager of the bus publicity division of the Westinghouse Electric & Mfg. Co. Mr. Turner who entered upon his new duties December 15th has complete charge of the New England section.

J. H. Tuttle, recently resigned from the Westcott Motor Car Co., where he served in the capacity of chief engineer for several years to join the Checker Cab Manufacturing Co., of Kalamazoo, as chief engineer.

Paul St. Elmo Webb has joined the Federal Motor Truck Co. in Chicago. He was formerly assistant manager of the Diamond T Motor Car Co., Chicago.



Ten Diamond T, Model 75, One-Ton Delivery Trucks Were Recently Added to Marshall Field & Company's Delivery Fleet

The chassis with the exception of the radiator and hood is the standard model 75, fast, light chassis that first appeared in 1923. Two different body types were provided.



# Commercial Car Specifications—Corrected Monthly

The Specifications, Chassis Prices, Etc., Are Corrected Each Month From Data Supplied Direct by the Makers. Gasoline Tractor-Trucks Will be Found at the End of Gasoline Commercial Cars

Those Chassis Which Are Sold and Recommended for Passenger Transportation Are Designated in the Following Table by Reference Sign (\$) in Front of the Name

For Specially Designed Motor Bus Chassis See Pages 42 and 43

See Table for Replacement Data. Truck Frame Dimensions Are Included in Same Table

(Where prices are not given it is because we have been unable to get them from authoritative sources)

For full name and address of manufacturer and information regarding complete line see page 51

Trade Name and Model	General			Engine					Electrical System		Clutch	Gearset		Rear Axle		Gear Ratios		Front Axle Make and Model	Springs (Make)	Steering Gear (Make)	Wheels (Make)	Rims (Make)	Chassis Weight (lbs.)						
	Standard Wheelbase (Inches)	Tire Size &&		Bore and Stroke (Inches)	N.A.C.C. Rated H.P.	Valve Arrangement	Oiling System	Governor (Make)	Radiator (Make)	Fuel System		Generator (Make)	Make	Type	Location	No. of Forward Speeds	Universals (Make)							Rear Axle		Total Reduction in High	Total Reduction in Low	Brakes, Location	
		Front (Inches)	Rear (Inches)							Carburetor (Make)														Fuel Feed	Ignition System (Make)				Make and Model
<b>1000 Pounds</b>																													
Chevrolet Sup. Com. Ch.	410	30x3 1/2	30x3 1/2	3 1/2x4	21.7	H	PS	Non	Har	Zen	Rem	Rem	Own Sup	K	O	O	3.77	O	S.S.	O	Jax	1430							
Overland, 91	395	30x3 1/2	30x3 1/2	3 1/2x4	19.6	L	PC	Non	Har	Til	G	G	O	P	O	4.50	A	O	O	Hay	1550								
<b>1500 Pounds</b>																													
Dodge Brothers	730	32x4	32x4	3 1/2x5	24.0	L	SP	Non	McC	Ste	N-E	N-E	O	D	O	4.54	A	O	O	Kel	1992								
Ramier, R-31	1970	35x5	35x5	3 1/2x5	22.5	L	PS	Non	Har	Zen	Rem	Rem	O	D	O	6.75	A	O	O	Fir	2500								
Rugles 15	122	32x4 1/2	32x4 1/2	3 1/2x5	19.6	L	PS	Non	Har	Zen	Eis	Eis	O	D	O	5.81	A	O	O	Fir	2300								
White 15	2400	34x5	34x5	3 1/2x5	22.5	L	SP	Non	McC	Zen	Bos	Bos	O	D	O	5.36	A	O	O	Fir	3225								
Yellow Cab Mod T3	1295	29x4 1/2	29x4 1/2	3 1/2x5	22.5	L	PS	Non	Lon	Zen	Bos	Bos	O	D	O	4.90	B	O	O	Fir	2500								
<b>1 Ton</b>																													
Acme Flyer	130	30x5	30x5	4 1/2x1 1/2	28.9	L	FP	Non	Roc	Zen	A-L	A-L	O	D	O	5.10	A	O	O	Smi	3000								
Autocar F	2400	34x4	34x4	4 1/2x1 1/2	18.1	L	SP	Non	Har	Str	Bos	Bos	O	D	O	8.30	A	O	O	Hoo	3800								
Autocar G	2500	122	34x4	4 1/2x1 1/2	18.1	L	SP	Non	Har	Str	Bos	Bos	O	D	O	8.30	A	O	O	Hoo	3800								
Bethlehem	1505	32x5	32x5	3 1/2x5	19.6	L	FP	Non	Har	Str	Bos	Bos	O	D	O	6.86	A	O	O	Fir	3000								
Bethlehem KN	1505	32x5	32x5	3 1/2x5	19.6	L	FP	Non	Har	Str	Bos	Bos	O	D	O	6.86	A	O	O	Fir	3000								
Beta J-3	1850	34x5	34x5	3 1/2x5	22.5	L	PC	Non	Har	Str	Bos	Bos	O	D	O	5.13	A	O	O	Fir	3150								
Brookway E-3	135	33x5	33x5	4x5	25.6	H	PC	Non	G&O	Zen	Eis	Eis	O	D	O	5.13	A	O	O	Fir	2900								
<b>2 Ton</b>																													
Casco A	1700	34x5	34x5	3 1/2x5 1/2	23.4	L	PC	Non	G&O	Zen	Bos	Bos	O	D	O	5.85	A	O	O	Hay	3200								
Chevrolet Sup.	550	120	34x4 1/2	3 1/2x5	21.7	H	PS	Non	Har	Zen	Rem	Rem	O	D	O	5.43	A	O	O	Hay	1850								
Commer 11	127	34x5	34x5	3 1/2x5	22.5	L	SP	Non	Lon	Zen	Bos	Bos	O	D	O	5.85	A	O	O	Hay	1850								
Concord E	2500	34x5	34x5	3 1/2x5	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.85	A	O	O	Hay	1850								
Corbett E	1600	130	34x4 1/2	3 1/2x5	22.5	L	PS	Non	McC	Zen	Bos	Bos	O	D	O	7.80	A	O	O	Hay	2930								
Diamond T75	130	34x5 1/2	34x5 1/2	4x5 1/2	25.6	H	PC	Non	G&O	Zen	Bos	Bos	O	D	O	5.12	A	O	O	Hay	2825								
Dorris K-2	2400	33x5	33x5	3 1/2x5	25.6	H	PC	Non	Mod	Zen	Bos	Bos	O	D	O	4.23	A	O	O	Hay	2825								
Duplex K-2	132	33x5	33x5	3 1/2x5	22.5	L	PC	Non	Mod	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	2000								
Federal Knight	1095	124	32x4 1/2	3 1/2x5 1/2	21.0	S	PC	Non	Mod	Zen	Bos	Bos	O	D	O	6.11	A	O	O	Hay	2400								
Ford T	365	124	30x3 1/2	3 1/2x4	22.5	L	PC	Non	Mod	Zen	Bos	Bos	O	D	O	6.11	A	O	O	Hay	2400								
Fulton A	1495	130	35x5	3 1/2x5 1/2	22.5	L	PC	Non	Liv	Zen	G	G	O	D	O	6.10	A	O	O	Hay	1572								
<b>3 Ton</b>																													
Garford 15	132	34x5	34x5	3 1/2x5	21.0	L	PC	Non	Chi	Str	Eis	Eis	O	D	O	6.50	A	O	O	Hay	3600								
Gary W.D.	1590	132	36x5	3 1/2x5 1/2	22.5	L	PC	Non	Chi	Str	Eis	Eis	O	D	O	6.50	A	O	O	Hay	3600								
GMC K-16	132	34x5	34x5	3 1/2x5	19.6	L	PC	Non	McC	Mar	Sim	Sim	O	D	O	5.50	A	O	O	Hay	3200								
Goffredon 20 B	131	33x5	33x5	3 1/2x5	22.5	L	PC	Non	McC	Mar	Sim	Sim	O	D	O	5.50	A	O	O	Hay	3435								
Graham BB	1175	130	33x5	3 1/2x5	22.5	L	PC	Non	McC	Mar	Sim	Sim	O	D	O	5.50	A	O	O	Hay	3435								
Graham-Bern 10-Sp.	129	33x5	33x5	3 1/2x5	22.5	L	PC	Non	McC	Mar	Sim	Sim	O	D	O	5.50	A	O	O	Hay	3435								
Grass Premier 40	1350	130	32x4 1/2	3 1/2x5	22.5	L	PC	Non	McC	Mar	Sim	Sim	O	D	O	5.50	A	O	O	Hay	2630								
Guider B	1650	132	34x5	3 1/2x5	22.5	L	PC	Non	McC	Mar	Sim	Sim	O	D	O	5.50	A	O	O	Hay	2370								
Independent (Iowa)	1450	135	34x5	3 1/2x5	22.5	L	PC	Non	McC	Mar	Sim	Sim	O	D	O	5.50	A	O	O	Hay	2370								
Indiana 11	120	34x5	34x5	3 1/2x5	22.5	L	PC	Non	McC	Mar	Sim	Sim	O	D	O	5.50	A	O	O	Hay	2370								
Internat'l S	124	32x4 1/2	32x4 1/2	3 1/2x5	19.6	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	2370								
<b>4 Ton</b>																													
Kenworth OS	2150	131	30x5	3 1/2x5 1/2	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	4100								
Kenworth OL	2250	140	30x5	3 1/2x5 1/2	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	4200								
King-Zeller	2050	134	34x5	3 1/2x5	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	3750								
Kiessling	1585	140	34x5	3 1/2x5	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	3750								
Lucas	130	34x4 1/2	34x4 1/2	4x5	25.6	H	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	2850								
Menominee	1650	132	34x5	3 1/2x5	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	2925								
Moreland R-C	1875	130	34x5	3 1/2x5	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	3335								
Moreland R-R	2260	180	32x6	3 1/2x5	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	3400								
Nash 2018	1505	130	34x5	3 1/2x5	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	3400								
Nelson LeMoon GP-1	151	34x5	34x5	3 1/2x5	22.5	L	PC	Non	Lon	Zen	Bos	Bos	O	D	O	5.50	A	O	O	Hay	2700								

**For full name and address of manufacturer and information regarding complete line see page 51**

[illegible]



[illegible]

For full name and address of manufacturer and information regarding complete line see page 51

Trade Name and Model	General			Engine					Electrical System		Clutch		Gearset			Rear Axle		Gear Ratios		Front Axle Make and Model	Springs (Make)	Steering Gear (Make)	Wheels (Make)	Chassis Weight (lbs.)			
	Standard Wheelbase (Inches)	Tire Size (Inches)	Rear Tire (Inches)	Make and Model	Bore and Stroke (Inches)	N.A.C.C. Rated H.P.	Valve Arrangement	Oiling System	Governor (Make)	Radiator (Make)	Fuel System		Ignition System		Generator and Starter	Type	Make and Model	Final Drive	Type						Total Reduction in High	Total Reduction in Low	Brakes, Location
											Carburetor (Make)	Fuel Feed	Spark (Make)	Points (Make)													
2 Ton—Con'd																											
Dixon A.	145	34x4	36x7	Con J-4	3 3/4 x 5	22.5	L	PP	Pie	G&O	Zen	V	Eis	Eis	Bos	West	D	Ful	Tim 6460	W	7.75	30.0	A	4450			
Duplex A.	145	34x4	36x7	Hin HAA	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	8.31	31.8	A	4400			
Eagle 100.	2275	130	34x8	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	Rus 6005-1	I	8.31	31.8	A	4100			
Fageel 235	3300	136	34x4	Wau FU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	Tim 6460	W	5.60	59.7	A	5500			
Forscher D.	3434	144	34x7	Con C-4	4 x 5 1/4	27.2	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	8.66	38.7	A	4735			
Fulton C.	1985	137	36x6	Bud BTUI	4 x 5 1/4	22.5	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4160			
Godfredson 41.	146 1/2	34x4	36x8	Bud BTUI	4 x 5 1/4	22.5	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4400			
Gross Premier 70.	2650	144	34x5 1/2	Wau Y	4 x 5 1/4	27.2	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	5100			
Guider E.	2775	152	36x8	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4700			
G.W.W.	2850	140	36x6	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	3625			
Hahn K.	2550	147	36x8	Wau Y	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	3625			
Hug 20.	1750	118	36x7	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	3625			
Indiana 20.	1100	150	36x8	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	3625			
International 43.	130	36x4	36x7	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	3625			
Kenworth M.	3100	153	36x4	Bud KBU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Kimball AB.	3435	153	36x4	Wis TAU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Mack V-1.	163	36x4	36x7	Wis TAU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Mack V-3.	163	36x4	36x7	Wis TAU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Mack AB.	3300	146 1/2	36x4	Wis TAU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Moreland EX.	3750	146 1/2	36x4	Wis TAU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Moreland EC.	2950	150	36x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Nash.	2750	148	36x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Nash 4017.	2750	144	36x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
National M.	137	36x4	36x6	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Nel'n & LeMoon GP2	2900	162	36x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Noble B-1.	2250	149	36x4	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
O.K. K.	2525	144	36x4	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Oneida Bg.	3080	136	36x6	Wis SU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Oshkosh AW.	3080	136	36x6	Wis SU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Oshkosh AAW.	3180	165	36x6	Wis SU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Patriot 9L.	146	36x4	36x7	Hin 400	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Penn.	2300	144	34x5	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Pierce Arrow XA	3300	150	36x4	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Raimier R28.	3090	157	34x8	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Raimier R28.	3190	175	34x8	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Republic 11X.	144	34x4	34x6	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Rugles 41.	148	30x4	34x7	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Sandow JS.	3200	156	36x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Schacht G.	2600	158	36x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Schacht J.	2600	158	36x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Selden 33.	146	34x4	34x6	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Service 42.	153	30x4	36x7	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Sterling 2.	3545	142	36x4	Con N	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Stewart 8.	1970	140	34x3 1/2	Con N	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Stoughton D.	1695	132	34x3 1/2	Con N	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Traffic 4000C.	1695	140	36x4	Con N	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Transport 38.	2550	146	36x4	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Traylor C.	2850	147	36x4	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Triangle C.	2285	148	34x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
United 35.	148	34x4	34x7	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
U.S. NW24.	3200	154	36x4	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
Wachsmut K.	3200	154	36x4	Bud GTU	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
White 20.	2650	168	36x4	Con K-4	4 x 5 1/4	25.6	L	PP	Pie	Mod	Zen	V	Eis	Eis	Bos	West	D	Ful	She W-103	W	7.25	36.2	A	4630			
White-Will P.																											



[illegible]

**For full name and address of manufacturer and information regarding complete line see page 51**

Trade Name and Model	General			Engine					Electrical System		Clutch		Gearset		Rear Axle		Gear Ratios		Front Axle Make and Model	Springs (Make)	Steering Gear (Make)	Wheels (Make)	Rims (Make)	Chassis Weight (lbs.)						
	Standard Wheelbase (Inches)	Tire Size & Inches		Bore and Stroke (Inches)	N.A.C.C. Rated H.P.	Valve Arrangement		Governor (Make)	Radiator (Make)	Fuel System		Generator and Starter (Make)	Type	Make and Model	Final Drive	Type	Total Reduction in High	Total Reduction in Low							Brakes, Location					
		Front (Inches)	Rear (Inches)			Carburetor (Make)	Fuel Feed			Ignition System (Make)	Make															Location	No. of Forward Speeds	Universals (Make)		
3 Ton	200	36x6	36x10	Con 6B	3 1/2 x 5	33 7/8	PC	Dup	G&O	Zet	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	6.80	35.3	A	Tim 1540B	Det	Ros	Ros	Rud	6900
	152	36x4	36x10	Con K-4	4 1/2 x 5 1/2	27 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.25	48.1	A	Tim 1540B	Det	Ros	Ros	Rim	4930
	166	34x6	36x10	Con L-4	4 1/2 x 5 1/2	32 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	42.3	A	Tim 1540B	Det	Ros	Ros	Int	4950
	3450	34x6	36x10	Con H	4 1/2 x 5 1/2	32 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	7.72	46.3	A	Tim 1540B	Det	Ros	Ros	Hoo	5500
	3550	34x6	36x10	Con K-4	4 1/2 x 5 1/2	32 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	7.72	46.3	A	Tim 1540B	Det	Ros	Ros	Hoo	5600
	3550	34x6	36x10	Con K-4	4 1/2 x 5 1/2	32 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	7.72	46.3	A	Tim 1540B	Det	Ros	Ros	Hoo	5600
	3550	34x6	36x10	Con K-4	4 1/2 x 5 1/2	32 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	7.72	46.3	A	Tim 1540B	Det	Ros	Ros	Hoo	5600
	3550	34x6	36x10	Con K-4	4 1/2 x 5 1/2	32 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	7.72	46.3	A	Tim 1540B	Det	Ros	Ros	Hoo	5600
	3550	34x6	36x10	Con K-4	4 1/2 x 5 1/2	32 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	7.72	46.3	A	Tim 1540B	Det	Ros	Ros	Hoo	5600
	3550	34x6	36x10	Con K-4	4 1/2 x 5 1/2	32 1/2	PC	Dup	G&O	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	7.72	46.3	A	Tim 1540B	Det	Ros	Ros	Hoo	5600
3 1/2 Ton	150	36x4	36x10	Bud HTU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544	Det	Ros	Ros	Ros	5900
	144	36x6	36x10	Bud HTU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544	Det	Ros	Ros	Ros	5900
	4000	36x4	36x10	Wan CU	4 1/2 x 5 1/2	30 3/16	PC	Pie	Lon	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	5.60	59.5	A	Tim 1520	Det	Ros	Ros	Bud	6250
	4000	36x4	36x10	Wan CU	4 1/2 x 5 1/2	30 3/16	PC	Pie	Lon	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	5.60	59.5	A	Tim 1520	Det	Ros	Ros	Bud	6250
	5250	36x6	36x10	Wan CU	4 1/2 x 5 1/2	30 3/16	PC	Pie	Lon	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	5.60	59.5	A	Tim 1520	Det	Ros	Ros	Bud	6250
	4200	36x4	36x10	Wan CU	4 1/2 x 5 1/2	30 3/16	PC	Pie	Lon	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	5.60	59.5	A	Tim 1520	Det	Ros	Ros	Bud	6250
	4200	36x4	36x10	Wan CU	4 1/2 x 5 1/2	30 3/16	PC	Pie	Lon	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	5.60	59.5	A	Tim 1520	Det	Ros	Ros	Bud	6250
	4200	36x4	36x10	Wan CU	4 1/2 x 5 1/2	30 3/16	PC	Pie	Lon	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	5.60	59.5	A	Tim 1520	Det	Ros	Ros	Bud	6250
	4200	36x4	36x10	Wan CU	4 1/2 x 5 1/2	30 3/16	PC	Pie	Lon	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	5.60	59.5	A	Tim 1520	Det	Ros	Ros	Bud	6250
	4200	36x4	36x10	Wan CU	4 1/2 x 5 1/2	30 3/16	PC	Pie	Lon	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	5.60	59.5	A	Tim 1520	Det	Ros	Ros	Bud	6250
3 1/4 Ton	150	36x6	36x10	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	152 1/2	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	150	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	3500	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	3500	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	3500	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	3500	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	3500	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	3500	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
	3500	36x4 1/2	36x10 1/2	Bud YBU-1	4 1/2 x 6	32 1/4	PC	McC	Chi	Str	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	41.0	A	Tim 1526	Det	Ros	Ros	SKM	5680
3 1/2 Ton	163	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	163	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	3900	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	4700	36x6 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	3700	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	3700	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	3500	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	3500	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	3500	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	3500	36x4 1/2	36x10 1/2	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
3 1/2 Ton	156	36x5	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	156	36x5	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	2300	36x6	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	2300	36x6	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	2300	36x6	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	2300	36x6	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	2300	36x6	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	2300	36x6	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	2300	36x6	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
	2300	36x6	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis	Del	P	Cot R	U	4	Blo	Tim 6511S	W	W	8.50	45.4	A	Tim 1544B	Det	Ros	Ros	Day	6300
3 1/2 Ton	156	36x5	36x10	Wan VAU	4 1/2 x 5 1/2	28 9/16	PP	Mon	Bus	Zen	V	Eis																		



## 4 Ton

For full name and address of manufacturer and information regarding complete line see page 51

Trade Name and Model	General			Engine						Electrical System		Clutch		Gearset		Rear Axle		Gear Ratios		Front Axle Make and Model	Springs (Make)	Steering Gear (Make)	Wheels (Make)	Chassis Weight (lbs.)							
	Standard Wheelbase (Inch.)	Tire Size		Bore and Stroke (Inches)	N.A.C.C. Rated H.P.	Valve Arrangement	Oiling System	Governor (Make)	Radiator (Make)	Fuel System		Ignition System (Make)	Generator and Starter (Make)	Type	Location	No. of Forward Speeds	Universals (Make)	Make and Model	Type						Final Drive	Type	Total Reduction in High	Total Reduction in Low	Brakes, Location		
		Front (Inches)	Rear (Inches)							Carburetor (Make)	Fuel Feed																				
5 Ton	5500 Opt	36x6	40x6	Ow 5R	4 1/2 x 6	36.1 L	PS	Ow	Bus	Zen	V	Spl	Bos	Ow	D	A	4	Ow	Ow 5R	W	F	10.0	54.5	B	Ow 5R	Mer	Gem	Day	Non	9600	
	5500 174	36x6	40x7	Con B-7	5 x 6	40.1 L	PP	Pie	Ow	Zen	V	Spl	Bos	B-L	D	A	7	Spi	Tim 1732B	W	W	11.8	110.7	A	Tim 1732B	S.P.	Gem	Sid	Non	9500	
	5500 204	36x6	40x7	Ow 5R	5 x 6	40.1 L	PP	PP	Pie	Ow	Zen	V	Spl	Bos	B-L	D	A	7	Spi	Ow Y	W	W	11.8	110.7	A	Ow Y	Del	Hoo	Sid	Non	9900
	5650 156	34x6	36x14	Ow 5R	4 1/2 x 5 1/2	28.9 L	SP	Pha	Ow	Str	Zen	G	Bos	L-N	P	A	4	M-E	Ow Y	R	F	9.89	72.1	A	Ow Y	Del	Hoo	Sid	Non	7400	
	4650 120	34x6	36x14	Ow 5R	4 1/2 x 5 1/2	28.9 L	SP	Pha	Ow	Str	Zen	G	Bos	L-N	P	A	4	M-E	Ow Y	R	F	9.89	72.1	A	Ow Y	Del	Hoo	Sid	Non	7200	
	4650 120	34x6	36x14	Ow 5R	4 1/2 x 5 1/2	28.9 L	SP	Pha	Ow	Str	Zen	G	Bos	L-N	P	A	4	M-E	Ow Y	R	F	11.3	60.6	A	Ow Y	Del	Hoo	Sid	Non	9410	
	4750 178	36x6	40x12	Con B-7	5 x 6	40.0 L	PP	Pha	Bus	Str	Zen	V	Eis	L-N	D	A	4	Spi	Tim 1730	W	F	10.2	54.8	A	Tim 1730	Row	Gem	Sm	Non	9800	
	174°	36x6	40x14	Her MU-3	4 1/2 x 5 1/2	32.4 L	PP	Sim	Bre	Zen	Zen	G	G	Bos	B-L	D	A	4	Pet	Tim 1732B	W	W	10.3	63.1	A	Tim 1732B	Per	Gem	Opt	Non	8500
	5140 204	36x6	36x7	Bud BTU	5 x 6 1/2	40.0 L	PP	Han	Ow	Zen	Zen	G	Bos	B-L	D	A	7	M-E	Tim 1732B	W	W	8.80	47.1	A	Tim 1732B	Per	Gem	StM	Non	8400	
	5250 204	36x6	36x7	Bud BTU	5 x 6 1/2	40.0 L	PP	Han	Ow	Zen	Zen	G	Bos	B-L	D	A	7	M-E	Tim 1732B	W	W	8.80	47.1	A	Tim 1732B	Per	Gem	StM	Non	9400	
4750 178	36x6	40x6	Con B-5	4 1/2 x 6	36.1 L	PP	Ow	Ow	Zen	McC	Str	V	Eis	B-L	D	A	7	Spi	Tim 1630B	W	W	10.3	55.3	A	Tim 1630B	S.S	Ros	Ros	Non	9410	
4750 178	36x6	40x6	Con B-7	5 x 6	40.0 L	PP	Sim	McC	Str	McC	Str	V	Eis	B-L	D	A	7	Spi	She 4FA20	W	W	13.0	96.0	A	She 4FA20	She	Ros	Ros	Non	9410	
Day-Elder EN.	170	36x5	40x6	Con B-5	4 1/2 x 6	36.1 L	PP	Mon	Bus	Ow	Str	V	Eis	B-L	D	A	4	Spi	Tim 1732B	W	W	10.2	54.8	A	Tim 1732B	She	Gem	Sm	Non	8800	
Diamond T S.	180	36x5	36x12	Con B-5	4 1/2 x 5 1/2	32.4 L	PP	Pie	G&O	Str	Zen	V	Bos	B-L	D	A	4	Spi	Tim 1732B	W	W	11.6	56.4	A	Tim 1732B	S.P.	Gem	Sm	Non	8750	
Dixon	163	36x6	40x6	Con B-5	4 1/2 x 6	36.1 L	PP	Pha	Ow	Zen	Zen	G	Bos	B-L	D	A	4	Spi	Tim 1632B	W	W	10.2	60.0	A	Tim 1632B	S.P.	Gem	Sm	Non	8700	
Federal X-2.	163	36x6	40x6	Con B-5	4 1/2 x 6	36.1 L	PP	Pha	Ow	Zen	Zen	G	Bos	B-L	D	A	4	Spi	Tim 1630B	W	W	10.2	60.0	A	Tim 1630B	S.P.	Gem	Sm	Non	8700	
Garford 68D.	162	36x6	40x12	Bud BTU	5 x 6 1/2	40.0 L	PP	Sim	Ow	Str	Zen	V	Spl	West	D	A	4	Spi	Tim 1732B	W	W	8.80	47.1	A	Tim 1732B	Per	Gem	Sm	Non	9350	
Gary B60	4850	36x6	40x14	Bud BTU	5 x 6 1/2	40.0 L	PP	McC	Str	McC	Str	V	Eis	B-L	D	A	7	Spi	Tim 1730	W	W	11.6	56.4	A	Tim 1730	Mar	Ros	Day	Non	9250	
G.M.C. K-101A.	163	36x5	40x12	Ow K101	4 1/2 x 6	32.4 L	PP	Ow	McC	Str	McC	Str	V	Eis	B-L	D	A	7	Spi	Tim 1632B	W	W	10.0	86.0	A	Tim 1632B	Mar	Ros	Day	Non	8755
G.M.C. K-101B.	187	36x5	40x12	Ow K101	5 x 6	40.0 L	PP	Ow	McC	Str	McC	Str	V	Eis	B-L	D	A	7	Spi	Tim 1632B	W	W	10.0	86.0	A	Tim 1632B	Mar	Ros	Day	Non	8755
Gottfredson 100.	169	36x6	40x14	Bud BTU	5 x 6 1/2	40.0 L	PP	Sim	Ow	McC	Str	V	Eis	B-L	D	A	7	Spi	Tim 1632B	W	W	10.2	54.8	A	Tim 1632B	Det	Gem	Day	Non	9120	
Grann-Berns n 50-60	168	36x6	40x6	Con 50	4 1/2 x 6	36.1 L	PP	Ow	Ow	Zen	Zen	G	Bos	B-L	D	A	4	M-E	She W-51	W	W	10.2	62.0	B	She W-51	Per	Ros	Van	Non	9700	
Guider K-6-6	5250 170	36x6	40x14	Bud BTU	5 x 6 1/2	40.0 L	PP	Pie	G&O	Str	Zen	V	Eis	B-L	D	A	4	M-E	Shu HFA20	W	W	10.2	62.0	B	Shu HFA20	Mer	Ros	Van	Non	8500	
Hahn M.	4250 152	36x5	36x12	Con L-4	4 1/2 x 5 1/2	32.4 L	PP	Pha	Chi	Str	Zen	V	Bos	B-L	D	A	4	M-E	Tim 1630	W	W	10.2	62.0	B	Tim 1630	Mer	Ros	Van	Non	9200	
Hahn M2	4750 174	36x5	40x12	Con B-5	4 1/2 x 6	36.1 L	PP	Pha	Chi	Str	Zen	V	Bos	B-L	D	A	4	M-E	Tim 1630	W	W	10.2	62.0	B	Tim 1630	Mer	Ros	Van	Non	9200	
Indiana 51.	182	36x6	40x12	Wau EU	5 x 6 1/2	40.0 L	PP	Wau	McC	Str	Zen	V	Eis	B-L	D	A	4	Spi	Tim 1630	W	W	10.2	62.0	B	Tim 1630	Mer	Ros	Van	Non	9200	
Indiana 52	182	36x6	40x12	Wau EU	5 x 6 1/2	40.0 L	PP	Wau	McC	Str	Zen	V	Eis	B-L	D	A	4	Spi	Tim 1630	W	W	10.2	62.0	B	Tim 1630	Mer	Ros	Van	Non	9200	
International 103.	160	36x5	40x14	Ow	4 1/2 x 5	28.9 L	SP	Ow	McC	Str	Zen	V	Eis	B-L	D	A	4	M-E	She 4FA20	W	W	10.2	62.0	B	She 4FA20	Rea	Who	Sm	Non	9310	
Kenworth RS.	5500 178	36x6	40x14	Bud BTU	5 x 6 1/2	40.0 L	PP	Pie	Ow	Str	Ow	V	Bos	B-L	D	A	7	Spi	Ow 103	W	W	11.0	69.9	B	Ow 103	Lah	Ros	Own	Non	9780	
Kimball AF.	5160 107	36x6	40x7	Wis RB5	5 x 6 1/2	40.0 L	PP	Pha	Ow	Str	Zen	V	Spl	B-L	D	A	4	Pet	She W-51	W	W	8.75	89.0	A	She 4FA-30	Lah	Ros	Sm	Non	9700	
King Zettler.	4525 168	36x6	40x14	Con B-5	4 1/2 x 6	36.1 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1732B	W	W	8.75	46.8	A	Tim 1732B	Tim	Ros	Sm	Non	8800	
Kleiber.	5300 185	36x6	40x14	Con B-5	4 1/2 x 6	36.1 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1732B	W	W	11.6	62.3	A	Tim 1732B	Tim	Ros	Sm	Non	8800	
Krebs B120	180	36x6	40x12	Wau EU	5 x 6 1/2	40.0 L	PP	Ow	Ow	Str	Zen	V	Bos	B-L	D	A	4	Pet	Tim 1730	W	W	10.3	52.8	A	Tim 1730	Ret	Ros	Sm	Non	9000	
Luedinghaus.	160	36x6	40x12	Wau EU	5 x 6 1/2	40.0 L	PP	Ow	Ow	Str	Zen	V	Bos	B-L	D	A	4	Pet	Tim 1632B	W	W	10.3	52.8	A	Tim 1632B	Ret	Ros	Sm	Non	9000	
Macar G1.	5500 188	36x6	40x6	Wis RB5	5 x 6	40.0 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1632B	W	W	11.6	55.0	A	Tim 1632B	Mat	Ros	Sm	Non	9400	
Mack AC.	5500 156	36x6	40x6	Wis RB5	5 x 6	40.0 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1632B	W	W	11.6	55.0	A	Tim 1632B	Mat	Ros	Sm	Non	9400	
Master 61.	4850 160	36x6	40x12	Wis RAU	4 1/2 x 6	36.1 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1632B	W	W	11.6	55.0	A	Tim 1632B	Mat	Ros	Sm	Non	9400	
Memminger 13.	5000 192	36x6	40x6	Con B-5	4 1/2 x 6	36.1 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1632B	W	W	11.6	55.0	A	Tim 1632B	Mat	Ros	Sm	Non	9400	
Melroe R.A.	5000 175	36x6	40x6	Con B-5	4 1/2 x 6	36.1 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1632B	W	W	11.6	55.0	A	Tim 1632B	Mat	Ros	Sm	Non	9400	
Nelson & LeMoon G5	4500	36x6	40x12	Wau EU	5 x 6 1/2	40.0 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1632B	W	W	11.6	55.0	A	Tim 1632B	Mat	Ros	Sm	Non	9400	
Northway Co.	4500	36x6	40x12	Wau EU	5 x 6 1/2	40.0 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1632B	W	W	11.6	55.0	A	Tim 1632B	Mat	Ros	Sm	Non	9400	
O'Brien G.	4725 180	36x6	40x12	Con B-5	4 1/2 x 6	36.1 L	PP	Pha	Ow	Str	Zen	V	Eis	B-L	D	A	4	Pet	Tim 1632B												



### 5½, 6 and 7 Ton

[illegible]

## DETAILED MOTOR

This Table Comprises Motor Bus Chassis Which Are Designed  
For Other Chassis Which Are Recommended and Adaptable for Bus Use See Models

Line Number	MAKE AND MODEL	GENERAL							ENGINE					ELECTRICAL SYSTEM					NORMAL SPEED					
		Seating Capacity	Chassis Price	Weights			Tread		Make and Model	Number of Cylinders Bore and Stroke	Rated Horse Power N.A.C.C.	Valve Arrangement	Oiling System	Radiator Make	Fuel System		Ignition System Make	Generator and Starter Make	Battery		Voltage and Amp. Hr. Cap.	High M. P. H.	Low M. P. H.	
				Chassis Only	Chassis with Body	Recommended Body Allowance	Wheelbase	Front							Rear	Carburetor Make			Fuel Feed	Make				Model
1	Ace C.	30	4800	6500	11500	5000	204	70	80 1/2	Cont 6B	6-3 1/4 x 6	33.7	L	PC	Own	Zen	V	Eis	Rem	USL	3HVXSX	6-110	35	6.0
2	Acme K.	30	4900	6900	9900	3000	200	58 1/2	74	Cont 6B	6-3 1/4 x 5	33.7	L	PC	Own	Zen	V	Eis	Del	Wil	SJRT4	6-111	30	5.7
3	Bridgeport 45.	30	3850	5500	.....	.....	178	60	72	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Own	Zen	V	Eis	Bos	Wil	.....	6-120	.....	.....
4	Brockway EB.	20	.....	3200	.....	.....	156	56	56	Wisc SU	4-4 x 5	25.6	I	PC	G&O	Zen	V	Eis	L-N	Exi	.....	6-105	.....	.....
5	Brockway J3.	25	.....	6400	9280	2880	185	66 1/2	71	Cont 6B	6-3 1/4 x 5	33.7	L	PC	Own	Zen	V	Eis	L-N	Exi	.....	12-220	25	5.0
6	Clinton 65B.	30	4075	5925	8700	2725	184	58 1/2	58 1/2	Bud EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Own	Zen	V	.....	Bos	Pol	611SHK	6-90	30	3.0
7	Clinton 65BS.	35	4800	6600	9600	3000	220	68	76 1/2	Buda YBU	4-4 1/4 x 6	32.4	L	PC	Own	Zen	V	.....	Bos	Pol	611KPC	6-130	35	3.0
8	Commerce 60.	25	5000	.....	.....	3000	329	68	75	Con 6B	6-3 1/4 x 5	33.7	L	PC	Lon	Zen	V	Bos	Bos	Wil	SJRT30	6-153	35	6.0
9	Commerce 65.	29	6000	.....	.....	3500	242	68	75	Con 14H	6-4 1/4 x 5 1/2	48.6	L	PC	Lon	Zen	V	Bos	L-N	Wil	SJRT 30	12-153	35	5.0
10	Day-Elder 20.	20	.....	5200	.....	2500	168	56	58	Cont K4	4-4 1/4 x 5 1/2	27.2	L	FP	Bus	Zen	V	Eis	Bos	Wil	SJRT6	6-153	35	10.0
11	Day-Elder 25.	25	.....	5600	.....	3000	180	58	58 1/2	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Bus	Zen	V	Eis	Bos	Wil	SJRT6	6-153	35	7.0
12	Day-Elder 30.	30	.....	6000	.....	3500	192	68 1/2	74	Cont 6B	6-3 1/4 x 5	33.7	L	PC	Bus	Zen	V	Eis	Bos	Wil	SJRT6	6-153	35	10.0
13	Duplex FB.	23	.....	5500	.....	3000	181	58	72	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Mod	Zen	V	Eis	Wes	Pol	.....	6-220	35	10.0
14	Fageol Parlor Car.	22	5365	6450	10200	.....	218	70	76 1/2	Has 50	4-4 1/4 x 5 1/2	28.9	I	PC	Lon	Zen	V	Del	Del	Exi	.....	6-240	35	7.0
15	Fageol Street Car.	29	6315	6700	10350	.....	230	70	70	Has 75	4-4 1/4 x 5 1/2	43.6	I	PC	Lon	Zen	V	Del	Del	Exi	.....	12-240	35	6.0
16	Federal.	25	.....	5450	.....	2500	190	60	60	Cont 6B	6-3 1/4 x 5	33.7	L	PC	Mod	Zen	V	Eis	Rem	Exi	3LXRE	6-185	35	6.0
17	Fifth Ave. J.	29	6900	5660	8235	2575	172	68 1/2	71 1/2	Yell EZ	4-4 x 6	25.6	X	PC	Own	Zen	V	Eis	N-E	Wil	STRN27	12-90	30	7.5
18	Fifth Ave. L.	21	8860	6670	.....	.....	174 1/2	67	77 1/2	Yell EZ	4-4 x 6	25.6	X	PC	Own	Zen	V	Eis	N-E	Wil	STRN27	12-90	30	7.5
19	Garford 51D.	29	.....	6500	9900	3400	187	68	75 1/2	Buda YBU	4-4 1/4 x 6	32.4	L	PC	Own	Str	V	Spl	Rem	Wil	STRN6	6-190	35	5.0
20	Garford 726.	25	.....	4800	7800	3000	168	56	65 1/2	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Own	Str	V	Spl	Rem	Wil	STRN6	6-190	35	5.4
21	Graham Bros. JB.	21	1640	3700	.....	.....	158	56	56	Dodge	4-3 3/4 x 4 1/2	24.0	L	PS	McC	Ste	V	N-E	N-E	Wil	.....	12-	30	5
22	Graham Bros. XB.	17	1515	3555	.....	.....	140	56	56	Dodge	4-3 3/4 x 5 1/2	24.0	L	PS	McC	Ste	V	N-E	N-E	Wil	.....	12-	30	5
23	Guildler 30.	30	4500	5600	8800	3600	191	64	70	Bud EBU	4-4 1/4 x 5 1/2	28.9	L	FP	G&O	Zen	V	Eis	L-N	Wil	SJRT28	12-104	30	5.0
24	International 33.	18	.....	.....	.....	.....	150	56	56 1/2	Own 33	4-4 1/4 x 5	22.5	I	Sp	.....	Own	G	Bos	Rem	Pol	.....	6-100	19	.....
25	International 53.	29	.....	.....	.....	.....	190	64 1/2	65	Own 53	4-4 1/4 x 5	28.9	I	Sp	.....	Own	V	Bos	Rem	Pol	.....	6-200	34	.....
26	Kissel.	18	4500	5200	7780	2400	202	64 1/2	66	Own 4-36	4-4 1/4 x 5 1/2	28.9	L	Sp	Spa	Str	V	Bos	Rem	Wil	SJRT6	6-153	40	.....
27	Larrabee X-2.	16	1910	3450	4850	1400	155	56	56	Cont 8R	6-3 1/4 x 4 1/2	27.3	L	PC	Fed	Zen	V	Bos	Bos	Exi	3XE15	6-80	40	8.0
28	Larrabee XH3.	21	3600	4670	7670	3000	186	62	66	Cont 6B	6-3 1/4 x 5	33.7	L	PC	Fed	Zen	V	Bos	Bos	Exi	36XRE25	6-240	35	7.0
29	Maack AB.	24	4350	.....	.....	230 1/2	168	68	63 1/2	Own AB	4-4 1/4 x 5	28.9	L	PC	Own	Str	V	Spl	N-E	Exi	6LXRE13	12-120	41	10.0
30	Maack AB.	25	4250	.....	.....	196	168	68	63 1/2	Own AB	4-4 1/4 x 5	28.9	L	PC	Own	Str	V	Spl	N-E	Exi	6LXRE13	12-120	41	10.0
31	Mason Road King C.	30	2150	3900	7400	3500	168	56	56	Her OX	4-4 x 5	25.6	L	.....	Fed	Zen	V	A-L	A-L	USL	3HVXSX	6-166	35	7.5
32	Master.	30	.....	6000	9500	3500	194	59	59	Buda EBU	4-4 1/4 x 5 1/2	28.9	L	PC	Chi	Zen	V	Eis	Wes	Wil	.....	12-	25	5.0
33	Menominee T.	16	2600	4290	6400	2100	175	56	56	Wisc Y	6-3 1/4 x 5	27.3	H	PC	Own	Zen	V	Bos	Bos	Wil	SJRT6	6-153	38	.....
34	Menominee DB.	25	4400	6020	9100	3200	186	68	73	Wisc TAU	4-4 x 6	25.6	L	PC	Own	Zen	V	Eis	Bos	Wil	SJRT6	6-153	32	6.0
35	Moreland RC.	16	2280	3850	5850	2000	180	56	57 1/2	Herc OBX	4-4 x 5	25.6	L	PC	Own	Zen	V	Spl	A-L	Hob	6HTXRI5A	6-140	25	.....
36	Moreland AC.	20	3780	4590	7590	3000	178	61	58	Cont K4	4-4 1/4 x 5 1/2	27.3	L	FP	Own	Sch	V	Spl	Spl	Hob	6HTXRI5A	6-140	25	.....
37	Moreland EC.	25	4700	5660	9160	3500	187	68	69	Cont L4	4-4 1/4 x 5 1/2	32.5	L	FP	Own	Sch	V	Spl	Spl	Hob	6HTXRI5A	6-140	25	.....
38	Pierce-Arrow Z.	25	4600	6100	9100	3000	196	68	75 1/2	Own	6-4 x 5 1/2	38.0	T	FP	Own	Own	P	Del	Del	Wil	SJRN6	6-163	50	3.0
39	Pierce-Arrow 2.	21	2470	3860	7360	3500	176	56	57 1/2	Own W	6-3 1/4 x 5	24.3	F	PS	Own	Sch	V	N-E	N-E	Wil	SJRT6	6-153	37	10.0
40	Reo W.	15	.....	.....	.....	.....	185	60	58	Lyc	4-4 x 5	25.6	L	PC	Own	Str	V	Bos	Bos	USL	.....	6-109	35	.....
41	Republic 81.	30	.....	7200	10200	3000	195	68	74	Cont L4	4-4 1/4 x 5 1/2	32.4	L	FP	Lon	Str	V	Bos	N-E	Pol	615KPN	12-	25	6.2
42	Selden 52.	30	.....	7200	10200	3000	195	68	74	Cont 6B	6-3 1/4 x 5	33.8	L	PC	Lon	Zen	V	Eis	N-E	Pol	615KPN	12-300	35	6.2
43	Selden.	27	.....	6100	10750	4550	198	64 1/2	58 1/2	Own CU	4-4 1/4 x 5 1/2	30.6	L	PC	Own	Zen	V	Eis	Bos	Gou	ASLR632	6-132	35	6.20
44	Sterling GB2.	27	.....	.....	.....	.....	194	64 1/2	58 1/2	Cont 6B	6-3 1/4 x 5	50.0	.....	.....	Str	V	Eis	N-E	Wil	.....	12-152	.....	.....	
45	Six Wheel Bus.	30	.....	6500	10000	3500	233 1/2	60	60	Cont 6	4-4 1/4 x 6	.....	.....	.....	McC	Zen	V	Bos	Bos	Pol	.....	6-170	35	5.0
46	Union GC.	30	.....	4500	7000	2500	198	58	58	Cont 6	4-3 3/4 x 4 1/2	.....	.....	.....	McC	Zen	V	Bos	Bos	Pol	.....	6-137	40	5.0
47	Union EC.	19	.....	.....	10000	3000	220	64 1/2	66	Buda	6-4 x 5 1/2	38.0	L	PC	Own	Str	V	Bos	Bos	Wil	.....	6-220	40	5.0
48	United.	30	.....	.....	10000	3000	220	64 1/2	66	Buda	6-4 x 5 1/2	38.0	L	PC	Own	Str	V	Bos	Bos	Wil	STAT 7	6-177	35	.....
49	Ward LaFrance 3B.	25	4950	6300	9700	3400	196	58	65 1/2	Wau DU	4-4 1/4 x 5 1/2	28.9	L	FP	Bus	Str	V	RBo	Rem	Wil	.....	6-177	35	.....
50	White 50A.	25	4950	5395	.....	.....	198	58 1/2	67 1/2	Own 50A	4-4 1/4 x 5 1/2	28.9	L	FP	.....	Zen	V	.....	L-N	Opt	.....	12-	.....	.....
51	Yellow Coach Z.	67	.....	.....	.....	.....	192	71	73 1/2	Yell EZ	4-4 x 6	25.6	X	PC	.....	Zen	V	.....	.....	.....	.....	12-	.....	.....

\*—Pneumatic  
†—Dual Pneumatic  
‡—Solid  
§—Dual Solid  
A-K—Atwater Kent  
A-L—Auto-Lite  
Arc—Archibald  
B&B—Borg & Beck  
Bim—Blmel  
B-L—Brown-Lipe  
Bud—Budd  
Buda—Buda

Blo—Blood  
Bos—Bosch  
Bus—Bush  
Cam—Campbell  
Col—Columbia  
Cont—Continental  
D—Multiple Dry Disk  
Day—Dayton  
Del—Delco  
Dtl—Detlaiff  
E-D—External Driveshaft  
E-R—External Rear Wheel

Cla—Clark

Eis—Eisemann  
Exi—Exide  
F—Head & Side (Engine)  
F—Full Floating  
1/2—1/2 Floating  
Fed—Feddors  
Flt—Flint  
Ful—Fuller  
FP—Full Pressure to all Bearings, including wrist pins  
G—Gravity  
Glo—Globe

Gem—Gemmer  
G&O—G & O  
Gou—Gould  
Hob—Hobbs  
Hink—Hinkley  
Has—Hall Scott  
Herc—Hercules  
I—In Head  
Ig—Internal Gear  
I-F—Internal Four Wheels  
Ind—Indestructible  
I-R—Internal Rear Wheels

## ELECTRIC COM

Name and Model Number	Total Weight Resting on Four Tires	Chassis Weight—Exclusive of Battery	Minimum Load Capacity	Maximum Load Capacity	Chassis Price	Maximum Speed	Location of Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
Autocar E 1F.					2400				G-E	G-E	...	R	Own	Row	34x4	34x5	Ross	107	60
Autocar E 2D.					2800				G-E	G-E	...	R	Own	Row	34x5	34x6	Ross	120	60
Autocar E 3H.					3200				G-E	G-E	...	R	Own	Row	34x5	36x8	Ross	128	60
Autocar E 4Y.					4000				G-E	G-E	...	R	Own	Row	34x6	36x6½	Ross	138	60
Autocar E 5M.					4300				G-E	G-E	...	R	Own	Row	36x7	36x7½	Ross	138	60
C-T D-1.	5400	2200				14	A	55	G-E	Own	4	Own	Flot	Shel	36x3	36x3½	W	100	69
C-T B-1.5.	6100	2300				14	A	60	G-E	Own	4	Own	Flot	Shel	36x3	36x4	W	91½	65
C-T D-1.5.	6200	2300				14	A	60	G-E	Own	4	Own	Flot	Shel	36x3	36x4	W	116	71
C-T B-2.	7300	2400				14	A	50	G-E	Own	4	Own	Flot	Shel	36x3½	36x5	W	101	66
C-T D-2.	7300	2400				14	A	50	G-E	Own	4	Own	Flot	Shel	36x3½	36x5	W	124	70
C-T B-4.	11750	4000				12	A	50	G-E	Own	4	Own	Flot	Shel	36x4	36x4½	W	116	68
C-T C-6.	14400	4300				10	A	45	G-E	Own	4	I	D	Shel	36x4	36x4½	W	122	70
C-T C-7.	16900	5000				10	A	45	G-E	Own	4	I	D	Shel	36x5	36x5½	W	126	65
C-T A-7.	17700	5800				11	A	45	G-E	Own	4	I	D	Shel	36x6	36x4½	W	122	60
C-T A-10.	22250	6500				10	A	45	G-E	Own	4	I	D	Shel	36x7	36x5½	W	132	59
Kelland AT.	1950		1500			15	S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BT.	2050		1500	2000		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CT.	2150		2000	2500		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	102	60
Kelland AH.	2500		1000	1500		15	A	45	G-E	G-E	4	C	D	Mer	36x3	36x3	Hin	106	60
Kelland BH.	2600		1500	2000		15	A	45	G-E	G-E	4	C	D	Mer	36x3½	36x3½	Hin	106	60
Kelland CH.	2700		2000	2500		15	A	45	G-E	G-E	4	C	D	Mer	36x3½	36x4	Hin	106	60
Kelland ATS.	2200	1000	1500			15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BTS.	2300		1500	2000		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CTS.	2400		2000	2500		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	114	60
Landen Century.	1700			1250	1600	15	S	60	G-E	Own	4	R	Flot	SP	32x4½	32x4½	Ross	108	50
Landen Century.	1950			2000	1850	15	S	60	G-E	Own	4	R	Flot	SP	33x5	33x5	Ross	112	50
Landen Marathon.	2900			2000	1850	14	A	50	G-E	Own	4	C	D	SP	36x4½	36x4	Bay	108	60



OR  
igned  
Models  
NORMAL  
SPEED

# BUS SPECIFICATIONS

and Sold Exclusively for Passenger Transportation  
Having Sign (\$) in the "COMMERCIAL CAR SPECIFICATIONS"

High M. P. H.  
Low M. P. H.

Line Number	TRANSMISSION				REAR AXLE							Front Axle Make and Model	TIRES AND WHEELS				DIMENSIONS (In.)					
	Clutch	Gearset		Universal	Make and Model	Final Drive	Type	Gear Ratio		Service Brake Type & Location	Steering Gear Make		Tires (in.)		Wheels—Make	Rims—Make	Floor Height	Turning Radius	Overall		Clearance from Ground	
		Location	Number of Forward Speeds					Make	Total in High				Total in Low	Front					Rear	Length		Width
1	D. B. L.	B. L. 55	U	4	Pet	Tim 6516	Wo	F	5.4	26.6	1-R	Tim 1550	Ros	36x6	38x7	Day	Fir	27 1/2	34	316	90	9 1/2
2	P. B. & B.	Cot RU	U	4	Blo	Tim 6511	Wo	F	6.8	35.3	1-R	Tim 1540B	Ros	36x6*	36x6†	Bud	Fir	27	38	312	90	5
3	D. B. L.	B. L. 50	U	4	Spi	Tim 6560	Wo	F	6.7	36.1	1-R	She Spec	Ros	36x6*	36x6†	Bud	Fir	31 1/2	38	312	90	5
4	D. B. L.	B. L. 35	U	4	Spi	Col 52028	SP	F	5.1	26.6	E-R	Col 5084	Gem	30x5*	32x6*	Ind	Fir	28 1/2	31 1/2	295 1/4	84	10
5	D. B. L.	B. L. 55	U	4	Spi	Cl 3D	Ig	F	7.0	34.8	E-D	Shu 610B	Gem	36x6*	36x6†	Sew	Fir	27 1/2	31 1/2	295 1/4	84	10
6	D. B. L.	B. L. 55	U	4	M-E	Tim 6566	Wo	F	6.5	34.8	1-R	Tim 1544B	Ros	36x6*	36x6†	Bud	Fir	30	37	270	75 1/2	9 1/2
7	D. B. L.	B. L. 55	U	4	M-E	Tim 6516	Wo	F	6.7	36.1	1-R	Tim 1550	Ros	36x6	36x6†	Bud	Fir	26	40	286	90	7
8	B. L. 70	B. L. 60H	A	4	Blo	Tim 6516	Wo	F	6.8	27.2	1-R	Tim 1550	Ros	36x6	36x6†	MM	Fir	20 1/2	307	88 1/2	7	7
9	B. L. 70	B. L. 60H	A	4	Blo	Tim 6516	Wo	F	6.4	21.6	1-R	Tim 1550	Ros	36x6	36x6†	MM	Fir	20 1/2	320	88 1/2	7	7
10	D. B. L.	B. L. 35	U	3	Spi	Tim 6462	Wo	F	6.5	21.8	1-R	Col 7018	Gem	36x6*	38x7*	Van	Fir	32	30	237	70 1/2	11
11	D. B. L.	B. L. 51	U	4	Spi	Tim 6566	Wo	F	6.7	36.1	1-R	Tim 1544	Gem	36x6*	40x8*	Van	Fir	32	30	260	75 1/2	11
12	D. B. L.	B. L. 51	U	4	Spi	Tim 65118	Wo	F	6.8	36.4	1-R	Shu 610	Gem	36x6*	36x6†	Van	Fir	25	27	271 1/2	90	6 1/2
13	D. B. L.	B. L.	U	4	Pet	Vul 4	Wo	F	6.5	32.1	1-R	Shu	Ros	34x5	34x5†	Mot	Fir	27	28	268	82	9
14	D. B. L.	B. L. 50	U	4	Spi	Tim 6466	Wo	F	4.6	19.7	1-R	Tim 1524	Ros	36x6*	36x6†	Bud	Fir	19 1/2	38	312	89	7 1/2
15	D. B. L.	B. L. 55	U	4	Spi	Tim 6466	Wo	F	4.6	19.7	1-R	Tim 4550	Ros	36x6	38x7	Bud	Fir	20 1/2	38 1/2	324	89	7 1/2
16	P. B. & B.	Det R400	U	4	Spi	Tim 6566	Wo	F	6.7	39.8	1-R	Own	Gem	36x6*	36x6†	Smi	Fir	30	28	266 1/2	87	10
17	P. Own	Own J	S	4	Sne	Tim 6412	Wo	F	5.4	21.6	1-R	Tim 1523	Ros	36x6	36x6	Own	Fir	29 1/2	31	277	87 1/2	7
18	P. Own	Own L	S	4	Sne	Own L	Ig	F	6.6	35.3	E-D	Own L	Ros	36x5†	36x5†	Own	Fir	26	30	295	91	7
19	D. Own	Own 51D	S	4	Spi	Tim 6511G	Wo	F	5.4	26.1	1-R	Tim 1550	Ros	36x6*	36x6†	Day	Fir	28 1/2	30	236	78 1/2	7 1/2
20	D. Own	Own 726	S	4	Spi	Tim 6560	Wo	F	5.4	21.6	1-R	Own	Ros	32x6*	32x6†	Bud	Fir	32	30	236	78 1/2	7 1/2
21	D. Dodge	Dodge	U	3	UP	Own	SP	F	6.3	26.3	1-R	Eat	Dodge	32x6	32x6	Smi	Fir	26	29 1/2	242 1/2	66	8
22	D. Dodge	Dodge	U	3	UP	Own	SP	F	6.3	26.3	1-R	Eat	Dodge	32x6	32x6	Smi	Fir	26	26	206 1/2	66	8
23	D. B. L.	B. L. 51	U	4	M-E	Wis 68C	R	F	5.8	26.3	E-D	Shu 5550B	Ros	36x6	36x6†	Bud	Fir	26	70	300	88	11
24	D. Own	Own 33	U	3	Own	Own 33	Ig	F	5.8	19.0	1-R	Own	Own	36x4	36x6	Own	Fir	34 1/2	252	76	8	8
25	D. Own	Own 53	U	4	Own	Own 53	Ig	F	7.7	27.6	E-R	Shu 610	Ros	36x6*	36x6†	Bud	Fir	29	27	220	70	11
26	D. B. L.	B. L. 35	U	3	Sne	Wis 60B	R	F	5.8	19.0	1-R	Shu 610	Ros	34x7*	34x7*	Whi	Gdy	24	27	220	70	11
27	D. B. L.	B. L. 31	U	3	Spi	Sal D	Be	F	7.7	27.6	E-R	Sal	Gem	34x5	34x5	Ind	Fir	29	27	220	70	11
28	D. B. L.	B. L. 31	U	3	Spi	She	W	F	5.5	26.4	1-R	Shu 5550B	Ros	32x6	32x6†	Bud	Fir	25	28	262	86	9
29	D. Own	Own AB	U	4	Spi	Own AB	R	F	6.7	21.5	1-R	Own AB	Own	36x6*	36x6†	Bud	Fir	28 1/2	32 1/2	310	84	10 1/2
30	D. Own	Own AB	U	4	Spi	Own AB	R	F	6.7	21.5	1-R	Own AB	Own	32x6*	32x6†	Bud	Fir	24 1/2	28 1/2	304	88	8 1/2
31	B&B	Cam	U	3	U-M	Fli	SP	F	5.3	2.26	E-R	Fli	Lav	30x5	30x5†	Bud	Fir	24	27	244 1/2	75	7 1/2
32	D. Ful	Ful GU7	U	4	Spi	Wis 25A	R	F	7.6	37.0	1-R	Shu 610	Ros	36x6	40x8	StM	Fir	26	33 1/2	300	88	11
33	D. Det	Cot AAU	U	3	Spi	Wis 40R	R	F	6.1	32.0	1-R	Tim 1550	Ros	32x6*	32x6†	Whi	Fir	23 1/2	30	256	86	10
34	D-Det	Cot AU	U	4	Pet	Wis 120K	R	F	5.5	22.0	E-R	Tim 1250	Ros	36x6*	36x6†	Ind	Fir	26	30	256	86	10
35	D. B. L.	B. L. 30	U	3	Spi	Tim 5512	Wo	F	6.0	32.1	1-R	Tim 1550	Ros	32x6	32x6	Own	Gdy	23 1/2	30	256	86	10
36	D. B. L.	B. L. 51	U	4	Pet	Tim 6410	Wo	F	6.0	32.1	1-R	Tim 1550	Ros	34x5*	34x5†	Bud	Fir	24 1/2	30	256	86	10
37	D. B. L.	B. L. 51	U	4	Pet	Tim 6411	Wo	F	6.0	32.1	1-R	Tim 1550	Ros	36x6*	36x6†	Bud	Fir	25 1/2	30	256	86	10
38	Own	Own W	A	4	Spi	Own W	Wo	F	6.0	32.0	E-D	Own	Own	36x5†	36x5†	Bud	Fir	28	37 1/2	282	89 1/2	8
39	Own	Own W	A	4	Spi	Own W	Wo	F	6.0	32.0	D	Own	Own	36x6	36x6†	Bud	Fir	28	40	303	89 1/2	8
40	Own	Own W	S	3	Own	Own W	SP	F	5.7	21.0	E-R	Own W	Own	32x6	32x6†	Bud	Fir	26 1/2	31	197	87	9
41	Ful	Ful	U	3	Spi	Eat	Ig	F	6.2	25.0	E-D	Eat	Jac	34x7	34x7	Van	Fir	21	20	170 1/2	67 1/2	7 1/2
42	D. B. L.	B. L.	U	4	Spi	Tim	Wo	F	7.7	31.0	1-R	Tim	Gem	36x5	36x5	Arc	Fir	29 1/2	33	309	91	7
43	D. B. L.	B. L.	U	4	Spi	Tim	Wo	F	7.7	31.0	1-R	Tim	Gem	36x5	36x5	Arc	Fir	29 1/2	33	309	91	7
44	D. B. L.	B. L. 50	U	4	Spi	Tim 6566	Wo	F	5.4	28.9	1-R	Tim 1544B	Ros	36x6*	36x6†	Bud	Fir	34 1/2	30	256	86	10
45	B-L	B-L	U	3	Blo	Tim 6212	Wo	F	5.4	28.9	1-R	Tim 1550	Ros	32x6*	32x6†	Bud	Fir	34 1/2	30	256	86	10
46	Ful	Ful 4	U	3	Wis SF	R	SP	F	5.4	28.9	1-R	Tim	Jax	32x6	32x6†	Bud	Fir	34 1/2	30	256	86	10
47	Ful	Ful 4	U	3	Wis SF	R	SP	F	5.4	28.9	1-R	Shu	Jax	34x7	34x7	Van	Fir	21	20	170 1/2	67 1/2	7 1/2
48	D. B. L.	B. L. 35	U	4	Blo	Wis 66C	R	F	5.8	26.3	1-R	Shu 610	Ros	36x5†	36x5	Whi	Fir	25	36	265 1/2	84	7 1/2
49	D. B. L.	B. L. 55	U	4	Spi	Tim 6566	Wo	F	6.0	32.1	1-R	Col	Ros	36x6*	36x6†	Bud	Fir	28	36	304	75 1/2	9 1/2
50	Own	Own 50A	U	4	Spi	Own 50A	R	F	5.6	23.3	1-R	Own 50A	Own	36x6	36x6†	Bud	Fir	28 1/2	36	274 1/2	81 1/2	9 1/2
51	P. Own	Own 2	S	4	Own Z	Own Z	Wo	F	6.2	23.3	1-F	Own	Own	34x5†	34x5†	Bud	Fir	28 1/2	36	274 1/2	81 1/2	9 1/2

- Joh-Johnson Kel-Kells  
L-L-Head  
Lav-Lavine  
L-N-Leece-Neville  
Lon-Long  
M&E-Merchant & Evans  
McC-McCord  
Mot-Motor Wheel Corp.  
N-E-North-East  
NP-No Provision  
Opt-Optional  
P-Single Plate Pet-Peters
- PC-Pressure to all Crankshaft  
& connecting Rod Bearings—  
Splash to other parts  
Pol-Prest-O-Lite  
R-Double Reduction  
Ros-Ross  
Rem-Remy  
R&V-R & V Knight  
Sal-Salisbury  
Sew-Sewell  
Sne-Snead  
SP-Spiral Bevel
- S-Separate Unit  
Spi-Spicer  
She-Sheldon  
Spa-Sparton  
StM-St. Marys  
Shu-Shuler  
Ste-Stewart  
Str-Stromberg  
Sp-Splash  
Tim-Timken  
U-Unit with Engine  
U. P.-Universal
- Van-Van Motor Wheels  
V-Vacuum  
Wal-Walker  
Whi-Whitcomb  
Wes-Westinghouse  
Wil-Willard  
Wis-Wisconsin  
Wis-Wisconsin  
Wo-Worm  
X-Sleeve Valve  
Yell-Yellow Zen-Zenith  
a-Other ratios optional

## MERCIAL CARS

Name and Model Number	Total Weight Resting on Four Tires	Chassis Weight Exclusive of Battery	Minimum Load Capacity	Maximum Load Capacity	Chassis Price	Maximum Speed	Location of Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
Lansden Marathon . . . . .	4400	4000	2250	13	A	50	G-E	Own	4	C	D	SP	36x4	36x3½†	Bay	120	60		
Lansden Marathon . . . . .	5700	7000	2950	11	A	45	G-E	Own	4	C	D	SP	36x5	36x5†	Bay	133	60		
Lansden Marathon . . . . .	7500	10000	3350	10	A	40	G-E	Own	4	C	D	SP	36x6	36x6†	Bay	146	60		
O. B-B. . . . .				13			G-E	Own		C	D		36x4	36x3½†	Own	107			
O. B-C. . . . .				11			G-E	Own		C	D		36x5	36x4†	Own	135			
O. B-D. . . . .				10			G-E	Own		C	D		36x6	36x5†	Own	143			
Steinmets 10. . . . .	2000			16	H&S	52	Diehl	Own	4	R	Russ	Shel	32x4½	32x4½	Lav	106	60		
Steinmets 15. . . . .	2300			16	H&S	55	Diehl	Own	4	R	Russ	Shel	33x5	33x5	Lav	114	60		
Walker 12. . . . .	1900	1000		15	H&S	50	G-E	Own	4		Tim	Det	32x3	32x3½	Ross	104	66		
Walker 15. . . . .	2800	1500		14	A	50	West	West	5	Own	Own	Math	34x3	36x3½	Ross	94	66		
Walker 22. . . . .	3000	2000		13	A	50	West	West	5	Own	Own	Math	34x3½	36x4	Ross	101	66		
Walker 42. . . . .	4200	4000		13	A	50	West	West	5	Own	Own	Math	36x4	36x6	Ross	114	66		
Walker P. . . . .	6000	7000		11	A	40	West	West	5	Own	Own	Math	36x5	38x5†	Ross	131	66		
Walker N. . . . .	6700	10000		10	A	40	West	West	5	Own	Own	Math	36x6	38x6†	Ross	141	66		
Walter HD. . . . .	6800	2300	2200	16	A	60	Diehl	G-E	5	B			32x3½	32x4	Ross	98	60		
Walter EN. . . . .	13200	4400	5000	13	A	50	G-E	G-E	5	Own	D		36x4	36x7	Gem	114	60		
Walter EL. . . . .	16800	5000	7000	3700	15½	A	50	G-E	5	Own	D		36x5	36x4	Gem	132	60		
Walter ES. . . . .	23600	7200	11000	4500	12	A	50	G-E	5	Own	D		36x6	40x6	Ross	150	70		
Walter ER. . . . .	28400	7500	15000	4800	11	A	50	G-E	5	Own	D		36x7	40x7	Ross	150	70		
Ward A211. . . . .	4500	1650	550	1150	15		75	G-E	4	W	Shel	Shel	32x4*	33x4½*	Own	88	56		
Ward B-222. . . . .	6000	2300	1010	1700	14		84	G-E	4	W	Shel	Shel	32x3½	32x4	Own	91	62		
Ward C-211. . . . .	8000	2670	2170	2880	13		65	G-E	4	W	Shel	Shel	32x3½	34x5	Own	96	64		
Ward E-211. . . . .	12000	3570	4480	5430	12½		56½	G-E	4	W	Shel	Shel	34x4	36x6	Own	108	65		
Ward G-211. . . . .	16000	4500	6560	7760	11		44	G-E	4	W	Shel	Shel	36x5	36x8	Own	120	68		
Ward J-211. . . . .	22500	6630	8580	11200	10		39½	G-E	5	W	Shel	Shel	36x6	36x10	Own	136	70		
Ward M-211. . . . .	30000	8430	13780	15920	9		36	G-E	5	W	Shel	Shel	36x7	36x7†	Own	152	71		

# KEY OF ABBREVIATIONS

## Wheelbase:

—More than one wheelbase furnished.

## Tires:

§§—Unless marked otherwise all tires are solids.

\*—Pneumatics standard equipment.

†—Pneumatics at Extra Cost.

‡—Dual on Rear.

## Engine:

Bud—Buda Co., Harvey, Ill.

Con—Continental M. Corp., Detroit, Mich.

D—Head & Side

GBS—Golden, Belknap & Swartz Co., Detroit, Mich.

H—Overhead.

Her—Hercules M. Mfg. Co., Canton, Ohio.

Hin—Hinkley Motors, Inc., Detroit, Mich.

H-S—Herschell-Spillman Motor Co., North Tonawanda, N. Y.

H-C—Holl Scott Motor Co., Berkeley, Cal.

L—L-Head.

Lyc—Lycoming M. Corp., Williamsport, Pa.

Mid—Midwest Eng. Co., Indianapolis, Ind.

FP—Full Pressure to all bearings including wrist pins.

PC—Pressure to all crankshaft and connecting rod bearings.

PS—Pressure with splash.

SP—Circulating splash.

T—T-Head.

Wau—Waukesha M. Co., Waukesha, Wis.

Wis—Wisconsin M. Mfg. Co., Milwaukee, Wis.

Yell—Yellow Sleeve Valve Eng. Works, East Moline, Ill.

X—Sleeve.

## Governor:

Con—Continental M. Corp., Detroit, Mich.

Dup—Duplex Eng. Gov. Co., Brooklyn, N. Y.

Han—Handy Gov. Co., Detroit, Mich.

Hin—Hinkley Motors, Inc., Detroit, Mich.

McK—E. R. Klemm, Chicago, Ill.

Mon—Monarch Gov. Co., Detroit, Mich.

Non—Not Supplied.

Pha—Pharo Mfg. Co., Detroit, Mich.

Pie—Pierce Governor Co., Anderson, Ind.

Sim—Duplex Eng. Gov. Co., Brooklyn, N. Y.

Wau—Waukesha M. Co., Waukesha, Wis.

## Radiator:

Bre—Bremer-Tully Mfg. Co., Chicago, Ill.

Bus—Bush Mfg. Co., Hartford, Conn.

Cor—Corcoran Mfg. Co., Cincinnati, Ohio.

Chic—Chicago Mfg. Co., Chicago, Ill.

E&M—English & Mersick Co., New Haven, Conn.

Fed—Fedders Mfg. Co., Buffalo, N. Y.

Fle—Flexo Mfg. Co., Los Angeles, Cal.

G&O—G. & O. Mfg. Co., New Haven, Conn.

Har—Harrison Rad. Corp., Lockport, N. Y.

Idl—Ideal Sheet Metal Works, Chicago, Ill.

Lon—Long Mfg. Co., Detroit, Mich.

McC—McCord Rad. & Mfg. Co., Detroit, Mich.

McK—McKinnon Dash Co., Buffalo, N. Y.

Per—Racine Radiator Co., Racine, Wis.

R-T—Rome-Turney Rad. Co., Rome, N. Y.

S-J—Shotwell-Johnson Co., Minneapolis, Minn.

Spl—Splittorf Electrical Co., Newark, N. J.

Stn—Standard Radiator Co., Inc., Springfield, N. Y.

US—U. S. Cartridge Co., Lowell, Mass.

Whe—Wheeler Rad. & Mfg. Co., E. Cleveland, Ohio.

## Fuel System:

Car—Carter Carburetor Co., St. Louis, Mo.

Ens—Ensign Car. Co., Los Angeles, Cal.

G—Gravity.

Hol—Holley Carburetor Co., St. Louis, Mo.

Joh—Johnson Co., Detroit, Mich.

Mar—Marvel Carburetor Co., Flint, Mich.

P—Pressure.

Ray—Beneke & Kropf Mfg. Co., Chicago, Ill.

Sco—Briscoe Devices Corp., Pontiac, Mich.

She—Wheeler Schebler Carburetor Co., Indianapolis, Ind.

Ste—Detroit Lubricator Co., Detroit, Mich.

Str—Stromberg Motor Devices Co., Chicago, Ill.

Til—Tillotson Mfg. Co., Toledo, Ohio.

V—Vacuum.

Zen—Zenith-Detroit Corp., Detroit, Mich.

## Electrical System:

†—Generator & Starter at Extra Cost.

†—Starter not Supplied, Generator at Extra Cost.

A-C—Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Apo—Apollo Magneto Corp., Apollo, Pa.

A-K—Atwater Kent Mfg. Co., Phila., Pa.

A-L—Electric Auto-Lite Corp., Toledo, O.

Ber—Ericsson Mfg. Co., Buffalo, N. Y.

Blj—Bljur Motor Appliance Co., Hoboken, N. J.

Bos—American Bosch Magneto Co., Springfield, Mass.

Con—Connecticut Telephone & Electric Co., Meriden, Conn.

Del—Dayton Engin. Lab. Co., Dayton, Ohio.

Dyn—Owen Dyneto Corp., Syracuse, N. Y.

Els—Elsemann Magneto Corp., Brooklyn, N. Y.

G&D—Gray & Davis, Boston, Mass.

Kin—Kokomo Electric Co., Kokomo, Ind.

K-W—K W Ignition Co., Cleveland, Ohio.

L-N—Leece-Neville Co., Cleveland, O.

N-E—North East Elec. Co., Rochester, N. Y.

Non—Not Supplied.

POL—Prest-O-Lite Co., Inc., Indianapolis, Ind.

Rem—Remy Electric Co., Anderson, Ind.

RBO—Robert Bosch Magneto Co., New York, N. Y.

Sci—Scintilla Magneto Co., New York, N. Y.

Sim—Simms Magneto Co., E. Orange, N. J.

Spl—Splittorf Electrical Co., Newark, N. J.

Wag—Wagner Elec. Mfg. Co., St. Louis, Mo.

Wes—Westinghouse Elec. & Mfg. Co., Springfield, Mass.

USL—U. S. Light & Heat Corp., Niagara Falls, N. Y.

## Clutch & Gearset:

\*—Other ratios optional.

A—Amidships.

B & B—Borg & Beck Co., Chicago, Ill.

B-L—Brown-Lipe Gear Co., Syracuse, N. Y.

Cot—Cotta Transmission Corp., Rockford, Ill.

Cov—Covert Gear Co., Lockport, N. Y.

Det—A. J. Detlaiff Co., Detroit, Mich.

D-G—Detroit Gear & Machine Co., Detroit, Mich.

Dod—Dodge Brothers Co., Detroit, Mich.

D-Disk.

Dun—Dundore Mfg. Co., Reading, Pa.

Durs—Durstone Gear Corp., Syracuse, N. Y.

Ful—Fuller & Sons Mfg. Co., Kalamazoo, Mich.

G-L—Grant Lee Gear Corp., Cleveland, O.

Har—Hartford Auto Parts Corp., Hartford, Conn.

Hoo—Hoosier Clutch Co., Muncie, Ind.

H-S—Hele-Shaw, Merchant & Evans Co., Philadelphia, Pa.

J—Unit with Jackshaft.

K—Cone.

M-E—Merchant & Evans Co., Phila., Pa.

M-M—Mechanics Mach. Co., Rockford, Ill.

Mun—Muncie Gear Works, Muncie, Ind.

O—Disk in Oil.

P—Plate.

R—Rear Axle.

U—Unit with Engine.

W-G—Warner Gear Co., Muncie, Ind.

## Universal:

Blo—Blood-Bros. Mach. Co., Allegan, Mich.

Det—Universal Products Co., Detroit, Mich.

Har—Hartford Auto Parts Corp., Hartford, Conn.

M-M—Mechanics Machine Co., Rockford, Ill.

M-E—Merchant & Evans Co., Phila., Pa.

Pet—Cleveland Universal Parts Co., Cleveland, Ohio.

Pic—Carl Pick Co., West Bend, Wis.

Sne—Snead & Co., Jersey City, N. J.

Spl—Spicer Mfg. Corp., S. Plainfield, N. J.

The—Thermold Rubber Co., Trenton, N. J.

U-M—Universal Machine Co., Bowling Green, Ohio.

U-P—Universal Products Co., Detroit, Mich.

## Front and Rear Axles:

½—Semi-Floating.

¾—Three-Quarter Floating.

Atl—Atlas Axle Co., Wilmington, Del.

Cla—Clark Equip. Co., Buchanan, Mich.

Col—Columbia Axle Co., Cleveland, O.

Con—Continental Axle Co., Edgerton, Wis.

C—Chain.

R—Straight Bevel.

D—Dead.

Eat—Eaton Axle Co., Cleveland, Ohio.

Flt—Flint Motor Axle Co., Flint, Mich.

F—Floating.

Huc—Sheldon Axle & Spring Co., Wilkes-Barre, Pa.

I—Internal Gear.

LM—L. M. Axle Co., Cleveland, Ohio.

P—Spur Gear.

R—Double Reduction.

Rus—Russel Motor Axle Co., Detroit, Mich.

S—Spiral Bevel.

Sal—Salisbury Axle Co., Jamestown, N. Y.

She—Sheldon Axle & Spring Co., Wilkes-Barre, Pa.

Shu—Shuler Axle Co., Inc., Louisville, Ky.

Std—Standard Parts Co., Cleveland, O.

Tim—Timken Detroit Axle Co., Detroit, Mich.

Tor—Eaton Axle & Spring Co., Cleveland, Ohio.

Vul—Vulcan Motor Axle Co.

Wal—Walker Axle Co., Chicago, Ill.

W—Worm.

Wis—Wisconsin Parts Co., Oshkosh, Wis.

## Brake:

A—Rear Wheels only.

B—Drive Shaft and Rear Wheels.

C—Front and Rear Wheel.

D—Jackshaft and Rear Wheels.

## Springs:

Am—American Auto Parts Co., Detroit, Mich.

Arm—General Motors Co., Pontiac, Mich.

Bea—Beans Spring Co., Inc., Massillon, O.

Bet—Betts Bros. Sp. Co., Inc., San Francisco, Cal.

Cha—Champion Auto Sp. Co., St. Louis, Mo.

Del—D. Delany & Son, Newark, N. J.

Det—Detroit Steel Prod. Co., Detroit, Mich.

G-C—Garden City Sp. Works, Chicago, Ill.

Har—Harvey Sp. & Forging Co., Racine, Wis.

I-C—Iron City Spring Co., Pittsburgh, Pa.

Lig—Liggett Sp. & Axle Co., Monongahela, Pa.

Mar—Maremont Mfg. Co., Chicago, Ill.

Mat—Mather Spring Co., Toledo, O.

Mer—E. R. Merrill Spring Co., New York.

Pen—Penn Sp. Works, Baldwinville, N. Y.

Per—Perfection Sp. Co., Cleveland, O.

Phi—Phila. Sp. Works, Phila., Pa.

P.S.—Point Sp. Co., Pittsburgh, Pa.

She—Sheldon Axle & Sp. Co., Wilkes-Barre, Pa.

S.S.—Standard Steel Sp. Co., Coraopolis, Pa.

Ste—Sterling Spring Co., Pittsburgh, Pa.

Tem—Temme Sp. Corp., Chicago, Ill.

Tut—Tuthill Sp. Co., Chicago, Ill.

U.S.—United States Sp. Co., Los Angeles, Cal.

Vul—Jenkins Vulc. Sp. Co., Richmond, Ind.

## Steering Gear:

CAS—C. A. S. Products Co., Columbus, O.

Dit—Ditwiler Mfg. Co., Galion, Ohio.

Dod—Dodge Bros. Co., Detroit, Mich.

Gem—Gemmer Mfg. Co., Detroit, Mich.

Jac—Saginaw Products Co., Saginaw, Mich.

Lav—Lavine Gear Co., Milwaukee, Wis.

M-P—Muncie Gear Works Corp., Muncie, Ind.

Ros—Ross Gear & Tool Co., Lafayette, Ind.

Sag—Saginaw Products Co., Saginaw, Mich.

Woh—Wohlrab Gear Co., Racine, Wis.

## Wheels:

Arc—Archibald Wheel Co., Lawrence, Mass.

A-W—Auto Wheel Co., Lansing, Mich.

Bim—Bimel Spoke & Auto Wheel Co., Portland, Ind.

Bud—Budd Wheel Co., Phila., Pa.

Cla—Clark Equip. Co., Buchanan, Mich.

Day—Dayton Steel Foundry Co., Dayton, Ohio.

Det—Detroit Panel & Plywood Co., Detroit, Mich.

Dis—Disteel Wheel Corp., Detroit, Mich.

Hay—Hayes Wheel Co., Jackson, Mich.

Hoo—Hoopes, Bro. & Darlington, Inc., West Chester, Pa.

Ind—Indestructible Wheel Co., Lebanon, Ind.

Int—Interstate Foundry Co., Chicago, Ill.

Jon—Jones, Phineas & Co., Newark, N. J.

Kel—Kelsey Wheel Co., Detroit, Mich.

MM—Michigan Malleable Iron Co., Detroit.

Mot—Motor Wheel Corp., Lansing, Mich.

Mun—Muncie Wheel Co., Muncie, Ind.

Nor—Northern Wheel Corp., Alma, Mich.

Pru—Prudden Wheel Co., Lansing, Mich.

Roy—Royer Wheel Co., Aurora, Ind.

Sch—Schwarz Wheel Co., Phila., Pa.

Smi—Smith Wheel, Inc., Syracuse, N. Y.

StM—St. Marys Wheel Co., St. Marys, O.

Std—Standard Wheel Co., Terre Haute, Ind.

Van—Van Wheel Corp., Onelda, N. Y.

Wal—Walker Axle Co., Chicago, Ill.

Way—Wayne Wheel Co., Newark, N. Y.

Whit—Whitcomb Wheel Co., Kenosha, Wis.

## Rim Equipment:

Flr—Firestone Steel Products Co., Akron, Ohio.

Gdy—Goodyear Tire & Rubber Co., Akron, Ohio.

Hay—Hayes Wheel Co., Jackson, Mich.

J



# Replacement Table—Corrected Monthly

Including Piston Ring Sizes, Carburetor Sizes, Hose Sizes, Fan Belt Sizes, Brake Lining Sizes and Truck Frame Dimensions

\*Note: Under Carburetor Inlet Diameter Will be Found Either the Size of Main Air Intake or the Gasoline Fuel Line  
Fan Belt Type: V—V-Shape, F—Flat, R—Round

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING				FRAME										
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width								
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter ★	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Ace 40-1½	3	1 1/4	1 1/4	1 1/4	V	7	1 1/4	8	1 1/4	40 3/8	2	F	12	3 1/4	1 1/4	4	12	3 1/4	1 1/4	4	122 1/2	76 3/8	215 1/4	32	9 1/2
Ace 60-3	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	15	1 1/4	42 3/8	2	F	13 1/2	3 1/2	1 1/4	4	13 1/2	3 1/2	1 1/4	4	108 3/4	84 3/8	241	34	10 1/2
Acme 20L-1½	3	1 1/4	1 1/4	1 1/4	V	7	1 1/4	11	1 1/4	34	1 1/4	F	12	3 1/4	1 1/4	4	12	3 1/4	1 1/4	4	123 1/2	74 3/8	200	34	9 3/4
Acme 40-2	4	1 1/4	1 1/4	1 1/4	V	8	1 1/4	11	1 1/4	40	1 1/2	F	12	3 1/4	1 1/4	2	12	3 1/4	1 1/4	2	123 1/2	74 3/8	208	34	9 3/4
Acme 40L-2	4	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	12 1/2	1 1/4	39 1/2	1 1/2	F	12	3 1/4	1 1/4	2	12	3 1/4	1 1/4	2	123 1/2	74 3/8	214 1/2	34	9 3/4
Acme 60-3	4	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	12 1/2	1 1/4	39 1/2	1 1/2	F	13	3 1/2	1 1/4	2	13	3 1/2	1 1/4	2	132 1/2	79 3/8	223 1/2	34	10
Acme 60L-3	4	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	12 1/2	1 1/4	39 1/2	1 1/2	F	13	3 1/2	1 1/4	2	13	3 1/2	1 1/4	2	140 1/2	79 3/8	235 1/2	34	10
Acme K (Bus)	3	1 1/4	1 1/4	1 1/4	V	12 3/4	1 1/4	12 3/4	1 1/4	34 1/4	1 1/4	F	15 1/2	3 3/4	1 1/4	2	15 1/2	3 3/4	1 1/4	2	220 1/2	127 1/2	312	41 1/2	6
Acme 90-4 1/2	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	12	1 1/4	41 1/2	1 1/2	F	15 1/2	3 3/4	1 1/4	2	15 1/2	3 3/4	1 1/4	2	150 1/2	95 3/8	243	36	10 1/2
Acme 90L-4 1/2	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	12	1 1/4	40 1/2	1 1/2	F	15 1/2	3 3/4	1 1/4	2	15 1/2	3 3/4	1 1/4	2	153 1/2	96 3/8	255	37	10 1/2
Acme 125-6 1/2	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	10	1 1/4	40 1/2	1 1/2	F	18	4	1 1/4	2	18	4	1 1/4	2	159 1/2	99 3/8	261	37	10
American-LaFrance W	3	1 1/4	1 1/4	1 1/4	V	5 1/2	1 1/4	10 1/2	1 1/4	36	2	F	17	3 1/2	1 1/4	4	17	3 1/2	1 1/4	4	132	81 1/4	236 1/4	33	10
American-LaFrance W	3	1 1/4	1 1/4	1 1/4	V	5 1/2	1 1/4	10 1/2	1 1/4	36	2	F	17	3 1/2	1 1/4	4	17	3 1/2	1 1/4	4	156	98 1/4	260 1/4	33	10
American-LaFrance W	3	1 1/4	1 1/4	1 1/4	V	5 1/2	1 1/4	10 1/2	1 1/4	36	2	F	17	3 1/2	1 1/4	4	17	3 1/2	1 1/4	4	180	110 1/4	284 1/4	33	10
American-LaFrance Y	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	11 1/2	1 1/4	42	2	F	21	4	1 1/4	4	21	4	1 1/4	4	144 1/2	89 1/4	244 1/2	35 1/2	9
American-LaFrance Y	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	11 1/2	1 1/4	42	2	F	21	4	1 1/4	4	21	4	1 1/4	4	168 1/2	103 1/4	268 1/2	35 1/2	9
American-LaFrance Y	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	11 1/2	1 1/4	42	2	F	21	4	1 1/4	4	21	4	1 1/4	4	210 1/2	124 1/4	310 1/2	35 1/2	9
American-LaFrance Y	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	11 1/2	1 1/4	42	2	F	21	4	1 1/4	4	21	4	1 1/4	4	214 1/2	90 3/4	244 1/2	36	10
American-LaFrance Y	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	11 1/2	1 1/4	42	2	F	21	4	1 1/4	4	21	4	1 1/4	4	192 1/2	113 1/4	292 1/2	35 1/2	9
American-LaFrance V	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	11 1/2	1 1/4	42	2	F	21	4	1 1/4	4	21	4	1 1/4	4	210 1/2	125	310 3/4	36	10
Armleder 30-1 1/2	3	1 1/4	1 1/4	1 1/4	V	12	1 1/4	16 3/4	1 1/4	33 3/4	1 1/2	F	11 1/2	3 1/4	1 1/4	4	11 1/2	3 1/4	1 1/4	4	Opt	71 1/2	215 1/2	32	9 1/2
Armleder 50-2 1/2	4	1 1/4	1 1/4	1 1/4	V	12	1 1/4	17 3/4	1 1/4	35 3/4	2	F	13	3 1/2	1 1/4	4	13	3 1/2	1 1/4	4	Opt	77 1/2	228 1/2	32	10
Atterbury 24-R	4	1 1/4	1 1/4	1 1/4	V	10 1/2	1 1/4	16	1 1/4	34 1/4	1 1/2	F	11 1/2	3 1/4	1 1/4	4	11 1/2	3 1/4	1 1/4	4	119 1/2	76	211 1/2	34	9 1/2
Atterbury 22C-2 1/2	4	1 1/4	1 1/4	1 1/4	V	10 1/2	1 1/4	16	1 1/4	40 1/4	1 1/2	F	13 1/2	3 1/2	1 1/4	4	13 1/2	3 1/2	1 1/4	4	129 1/2	78 1/2	225	34	9 1/2
Atterbury 22D-3 1/2	4	1 1/4	1 1/4	1 1/4	V	10 1/2	1 1/4	16	1 1/4	40 1/4	1 1/2	F	13 1/2	3 1/2	1 1/4	4	13 1/2	3 1/2	1 1/4	4	142 1/2	93 1/4	242	37 1/2	10 1/2
Atterbury 24E	4	1 1/4	1 1/4	1 1/4	V	10 1/2	1 1/4	16	1 1/4	42 3/4	1 1/2	F	17 1/4	4	1 1/4	4	17 1/4	4	1 1/4	4	159 1/2	98 3/4	263	37 1/2	10 1/2
Autocar XXI-F-1 1/2	4	1 1/4	1 1/4	1 1/4	V	5	1 1/4	9 3/4	1 1/4	49 1/4	2	F	16 3/4	2 1/4	1 1/4	4	16 3/4	2 1/4	1 1/4	4	91	67	156	34	9 1/2
Autocar XXI-G-1 1/2	4	1 1/4	1 1/4	1 1/4	V	5	1 1/4	9 3/4	1 1/4	49 1/4	2	F	16 3/4	2 1/4	1 1/4	4	16 3/4	2 1/4	1 1/4	4	114	90	179	34	9 1/2
Autocar XXVI-M4-6	3	1 1/4	1 1/4	1 1/4	V	3 1/2	1 1/4	3 1/2	1 1/4	49 1/4	2	F	23 1/2	2 1/4	1 1/4	4	23 1/2	2 1/4	1 1/4	4	139 1/2	80 3/4	223 1/2	34 1/2	10
Autocar XXVI-L4-6	3	1 1/4	1 1/4	1 1/4	V	3 1/2	1 1/4	3 1/2	1 1/4	47 3/4	2	F	23 1/2	2 1/4	1 1/4	4	23 1/2	2 1/4	1 1/4	4	175 1/2	116 1/2	255 1/2	34 1/2	10
Autocar XXVII-H3	3	1 1/4	1 1/4	1 1/4	V	3 1/2	1 1/4	3 1/2	1 1/4	47 3/4	2	F	20 1/2	2	1 1/4	4	20 1/2	2	1 1/4	4	131 1/2	76	213 1/2	34 1/2	10 1/2
Autocar XXVII-K3	3	1 1/4	1 1/4	1 1/4	V	3 1/2	1 1/4	3 1/2	1 1/4	47 3/4	2	F	20 1/2	2	1 1/4	4	20 1/2	2	1 1/4	4	151 1/2	100	237 1/2	34 1/2	10 1/2
Available J-H-1 1/2	4	1 1/4	1 1/4	1 1/4	V	11	1 1/4	14	1 1/4	40	2	F	48	2 1/2	1 1/4	2	48	2 1/2	1 1/4	2	120	80 1/2	201 1/2	32	9
Available J-H2	4	1 1/4	1 1/4	1 1/4	V	12	1 1/4	14	1 1/4	40	2	F	48	2 1/2	1 1/4	2	48	2 1/2	1 1/4	2	120	84 1/2	212	32	9
Available J-H-2 1/2	4	1 1/4	1 1/4	1 1/4	V	11	1 1/4	14	1 1/4	40	2	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	144	85 1/2	226 1/2	32	9
Available J-H3 1/2	4	1 1/4	1 1/4	1 1/4	V	12	1 1/4	14	1 1/4	42	2	F	16	3 1/4	1 1/4	4	16	3 1/4	1 1/4	4	168	106 1/2	254 1/2	36	9
Available J-H5	3	1 1/4	1 1/4	1 1/4	V	12	1 1/4	16	1 1/4	40	2	F	18	4	1 1/4	4	18	4	1 1/4	4	168	112 1/2	263 1/2	38	9
Bessemer G-1	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	10	1 1/4	42	1 1/2	V	46	2 1/2	1 1/4	2	44	2 1/4	1 1/4	2	98 1/4	58 1/2	182 1/4	34	.....
Bessemer H-2-1 1/2	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	10	1 1/4	43	1 1/2	V	16 3/8	2	1 1/4	8	16 3/8	2	1 1/4	8	116	76	203	34	.....
Bessemer J2-2 1/2	3	1 1/4	1 1/4	1 1/4	V	12	1 1/4	5	1 1/4	36 1/4	1 1/2	V	18 3/8	2	1 1/4	8	18 3/8	2	1 1/4	8	142 1/2	92 1/4	229	34	.....
Bessemer K2-4	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	10	1 1/4	39 1/4	1 1/2	F	55	3 1/2	1 1/4	2	33	4 1/2	1 1/4	1	157 1/2	108	249	38	.....
Bethlehem KN-1	3	1 1/4	1 1/4	1 1/4	V	8 1/2	1 1/4	8	1 1/4	35 1/4	1 1/2	F	20 1/2	1 1/4	1 1/4	2	20 1/2	1 1/4	1 1/4	2	89 1/2	56 1/4	175	32	10 1/2
Bethlehem GN-2	3	1 1/4	1 1/4	1 1/4	V	8 1/2	1 1/4	8	1 1/4	40 1/4	1 1/2	F	51	2 1/2	1 1/4	1	37	2 1/2	1 1/4	1	116 1/4	74	208 1/4	34 1/2	9 1/2
Bethlehem L	3	1 1/4	1 1/4	1 1/4	V	8 1/2	1 1/4	8	1 1/4	40 1/4	1 1/2	F	51	2 1/2	1 1/4	1	37	2 1/2	1 1/4	1	113 1/4	81 1/2	226 1/4	34 1/2	8 1/2
Bets J3-1	3																								

## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING								FRAME							
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service				Emergency				Length			Width				
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat to Center of Rear Axle	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis	
Commerce 11-2000.....	3	1 1/4	1 1/4	1 1/4	V	10	2	10	2	44	3 1/2	V	50	13 1/2	3 1/2	4	48 1/2	13 1/2	3 1/2	4	92 1/2	53 1/2	193	34	9	
Commerce 14B-3000.....	4	1 1/4	1 1/4	1 1/4	V	10	2	10	2	39 1/2	3 1/2	V	11 1/2	13 1/2	3 1/2	4	11 1/2	13 1/2	3 1/2	4	117	75	210	34	8 1/2	
Commerce 25B-5000.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	1 1/2	15 1/2	1 1/2	42	1 1/2	V	13 1/2	13 1/2	3 1/2	4	13 1/2	13 1/2	3 1/2	4	132	84	228 1/2	34	12 1/2	
Concord E-1.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	12	13 1/2	3 1/2	4	12	13 1/2	3 1/2	4	.....	.....	.....	32 1/2	.....	
Concord G-2.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	12	13 1/2	3 1/2	4	12	13 1/2	3 1/2	4	.....	.....	.....	32 1/2	.....	
Concord H-2.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	12	13 1/2	3 1/2	4	12	13 1/2	3 1/2	4	.....	.....	.....	32 1/2	.....	
Concord J-2 1/2.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	13 1/2	13 1/2	3 1/2	4	13 1/2	13 1/2	3 1/2	4	.....	.....	.....	32 1/2	.....	
Concord JL-3.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	13 1/2	13 1/2	3 1/2	4	13 1/2	13 1/2	3 1/2	4	.....	.....	.....	32 1/2	.....	
Corbitt S-3 1/2.....	3	1 1/4	1 1/4	1 1/4	H	8	2	14	2	38	1 1/2	F	16 1/2	13 1/2	3 1/2	4	16 1/2	13 1/2	3 1/2	4	103	59	196	34	11 1/2	
Corbitt E-1.....	3	1 1/4	1 1/4	1 1/4	H	9	2	12	2	41	1 1/2	F	16 1/2	13 1/2	3 1/2	4	16 1/2	13 1/2	3 1/2	4	104	62	198	34	11 1/2	
Corbitt D-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	15	1 1/2	46	1 1/2	F	18	13 1/2	3 1/2	4	18	13 1/2	3 1/2	4	110	72	206	34	10	
Corbitt C-2.....	3	1 1/4	1 1/4	1 1/4	V	13	1 1/2	15	1 1/2	46	1 1/2	F	22 1/2	13 1/2	3 1/2	4	22 1/2	13 1/2	3 1/2	4	132	78	230	35	10 1/2	
Corbitt B-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	13	1 1/2	15	1 1/2	46	1 1/2	F	22 1/2	13 1/2	3 1/2	4	22 1/2	13 1/2	3 1/2	4	136	78	232	35	10 1/2	
Corbitt R-2 1/2-3.....	3	1 1/4	1 1/4	1 1/4	V	14	1 1/2	18	1 1/2	46	1 1/2	F	22 1/2	13 1/2	3 1/2	4	22 1/2	13 1/2	3 1/2	4	153	92	254	35	10 1/2	
Corbitt A-3 1/2-4.....	3	1 1/4	1 1/4	1 1/4	V	14	1 1/2	18	1 1/2	46	1 1/2	F	21	13 1/2	3 1/2	2	21	13 1/2	3 1/2	2	168	106	266	35	9	
Corbitt AA-5.....	3	1 1/2	1 1/2	1 1/2	V	13	2	14	2	36	2	F	68 1/2	3	1 1/2	2	68 1/2	3	1 1/2	2	168	106	268	38	10	
Day-Elder AN-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	6 3/4	1 1/4	7	1 1/4	34 1/2	1 1/2	F	10 1/2	3	1 1/2	4	10 1/2	3	1 1/2	4	106 1/2	62 1/2	191	35	.....	
Day-Elder BN-2.....	3	1 1/4	1 1/4	1 1/4	V	4	1 1/2	12 1/2	1 1/2	41	1 1/2	F	11 1/2	3 1/2	1 1/2	4	11 1/2	3 1/2	1 1/2	4	120	78 1/2	204 1/2	34	.....	
Day-Elder DN-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	4	1 1/2	12 1/2	1 1/2	43	1 1/2	F	13 1/2	3 1/2	1 1/2	4	13 1/2	3 1/2	1 1/2	4	132	72 1/2	222 1/2	34	.....	
Day-Elder CN-3.....	3	1 1/4	1 1/4	1 1/4	V	10 1/2	2	12	1 1/2	37	2	F	13 1/2	3 1/2	1 1/2	4	13 1/2	3 1/2	1 1/2	4	123 1/2	77 1/2	216	35	.....	
Day-Elder FN-4.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	1 1/2	12 1/2	1 1/2	43	1 1/2	F	15 1/2	3 1/2	1 1/2	4	15 1/2	3 1/2	1 1/2	4	120 1/2	81 1/2	214 1/2	35	.....	
Day-Elder EN-5-6.....	1	1 1/4	1 1/2	1 1/2	V	12 1/2	2	.....	1 1/4	38	2	F	17 1/2	4	1 1/2	4	17 1/2	4	1 1/2	4	154	94	253	37	.....	
Diamond T-75-1-1.....	3	1 1/4	1 1/4	1 1/4	V	8	1 1/2	10 1/2	1 1/2	33 1/2	1 1/2	F	22	13 1/2	1 1/2	2	46 1/2	13 1/2	1 1/2	2	1	90	57 1/2	182 1/2	34	.....
Diamond T-03-1-1 1/4.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/2	6	1 1/2	35	2	F	48	13 1/2	1 1/2	4	33	13 1/2	1 1/2	4	100	.....	.....	34	.....	
Diamond T-T-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/2	6	1 1/2	35	2	F	11 1/2	3 1/2	1 1/2	4	11 1/2	3 1/2	1 1/2	4	Opt	.....	.....	34	.....	
Diamond T-U2-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/2	6	1 1/2	35	2	F	13 1/2	3 1/2	1 1/2	4	13 1/2	3 1/2	1 1/2	4	Opt	.....	.....	34	.....	
Diamond TK-3 1/2.....	3	1 1/4	1 1/4	1 1/4	V	10	1 1/2	10	1 1/2	35	2	F	15 1/2	3 1/2	1 1/2	4	15 1/2	3 1/2	1 1/2	4	Opt	.....	.....	37	.....	
Diamond T-S-5.....	3	1 1/4	1 1/2	1 1/2	V	9	2	21	2	40 1/2	2	F	18	4	1 1/2	4	17 1/2	4	1 1/2	4	Opt	.....	.....	37	.....	
Dixon Model D.....	4	1 1/4	1 1/4	1 1/4	V	11	1 1/2	8	1 1/2	41	.....	F	13	3 1/2	1 1/2	4	13	3 1/2	1 1/2	4	126	71	221 1/2	34 1/2	9 1/2	
Dixon Model C.....	4	1 1/4	1 1/4	1 1/4	V	11	1 1/2	9	1 1/2	42	.....	F	13	3 1/2	1 1/2	4	13	3 1/2	1 1/2	4	Opt	71	221 1/2	34 1/2	9 1/2	
Dixon Model A.....	4	1 1/4	1 1/4	1 1/4	V	12	1 1/2	10	1 1/2	42	.....	F	13	3 1/2	1 1/2	4	13	3 1/2	1 1/2	4	Opt	71	221 1/2	36	9 1/2	
Dorris K-4-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	2 1/2	1 1/2	6 1/2	1 1/2	42 1/2	2	F	13 1/2	3 1/2	1 1/2	4	13 1/2	3 1/2	1 1/2	4	142 1/2	96 1/2	233 1/2	34	9	
Dorris K-7-3 1/2.....	3	1 1/4	1 1/4	1 1/4	V	2 1/2	1 1/2	6 1/2	1 1/2	42 1/2	2	F	15 1/2	3 1/2	1 1/2	4	15 1/2	3 1/2	1 1/2	4	178 1/2	130 1/2	270 1/2	36	9	
Double Drive TT-3.....	4	1 1/4	1 1/4	1 1/4	V	12	2	19	1 1/2	34	2	F	8 1/2	4	1 1/2	4	18	4	1 1/2	4	132	100	216	34	9 1/2	
Duplex G.....	4	1 1/4	1 1/4	1 1/4	V	.....	1 1/4	.....	1 1/4	.....	.....	F	11	2 1/2	1 1/2	4	11	2 1/2	1 1/2	4	102	.....	.....	34	.....	
Duplex GH.....	4	1 1/4	1 1/4	1 1/4	V	.....	1 1/4	.....	1 1/4	.....	.....	F	19	2 1/2	1 1/2	4	19	2 1/2	1 1/2	4	112	.....	.....	34	.....	
Duplex A.....	3	1 1/4	1 1/4	1 1/4	V	.....	1 1/4	.....	1 1/4	.....	.....	F	20	2 1/2	1 1/2	4	20	2 1/2	1 1/2	4	121	.....	.....	34	.....	
Duplex AC.....	3	1 1/4	1 1/4	1 1/4	V	.....	1 1/4	.....	1 1/4	.....	.....	F	26	2 1/2	1 1/2	4	26	2 1/2	1 1/2	4	140	.....	.....	34	.....	
Duplex E.....	3	1 1/4	1 1/4	1 1/4	V	.....	2	.....	1 1/4	.....	.....	F	10	2 1/2	1 1/2	2	52	2 1/2	1 1/2	4	128	.....	.....	40	.....	
Duplex FD.....	4	1 1/4	1 1/4	1 1/4	V	.....	2	.....	1 1/4	.....	.....	F	26 1/2	2 1/2	1 1/2	4	26 1/2	2 1/2	1 1/2	4	Opt	.....	.....	34	.....	
Eagle 100-2.....	4	1 1/4	1 1/4	1 1/4	V	14	2	16	1 1/2	36	1 1/2	.....	49 1/2	3	1 1/2	2	46	2 1/2	1 1/2	2	Opt	.....	.....	36	.....	
Eagle 101-1 1/4.....	4	1 1/4	1 1/4	1 1/4	V	14	2	16	1 1/2	34	1 1/2	.....	21	2 1/2	1 1/2	4	21	2 1/2	1 1/2	4	Opt	.....	.....	31	.....	
Eagle 104-2-3.....	4	1 1/4	1 1/4	1 1/4	V	14	2	16	1 1/2	36	1 1/2	F	49 1/2	3	1 1/2	2	46	2 1/2	1 1/2	2	Opt	.....	.....	32	.....	
Fageol 1 1/2-2.....	3	1 1/4	1 1/4	1 1/4	V	10	2 1/2	20	2 1/2	37 1/2	1 1/2	F</														



## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE											BRAKE LINING								FRAME					
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length			Width	
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Gramm-Bernstein 125-2½	3	1 1/4	1 1/4	1 1/4	V	4 1/2	1 1/2	12	1 1/2	32	2	F	8	5	1/4	2	45	2	1/4	4	126	77 1/2	214	32	.....
Gramm-Bernstein 30-3	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	9	1 1/2	33 1/2	2	F	22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	129 1/2	81 1/2	226 1/2	36	.....
Gramm-Bernstein 75P-3 1/2	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	9	1 1/2	33 1/2	2	F	22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	129 1/2	81 1/2	226 1/2	36	.....
Gramm-Bernstein 40-4	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	9	1 1/2	33 1/2	2	F	22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	144	87 1/2	240 1/2	36	.....
Gramm-Bernstein 50-5-6	3	1 1/4	1 1/4	1 1/4	V	23 1/4	2	13 1/4	1 1/2	40 1/2	2	F	32 1/4	2 1/4	1/4	4	32 1/4	2 1/4	1/4	4	132	97	263 1/2	36	.....
Grass Premier 40A	3	1 1/4	1 1/4	1 1/4	V	12	1 1/2	14 1/2	1 1/2	29	1	F	22 1/4	1 1/4	1/4	4	48	2 1/2	1/4	2	98	70	192	31	.....
Grass Premier 60A1 1/2	4	1 1/4	1 1/4	1 1/4	V	14	1 1/2	16	1 1/2	.....	.....	.....	48 1/2	2	1/4	2	47	1 1/2	1/4	2	108	66	204	31	.....
Grass Premier 70A2 1/2	4	1 1/4	1 1/4	1 1/4	V	14	1 1/2	16	1 1/2	.....	.....	.....	48 1/2	2	1/4	2	47	1 1/2	1/4	2	120	83	214	31	.....
Grass Premier 90A3 1/2	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	11	1 1/2	40	1 1/2	F	15 1/2	3 1/4	1/4	4	15 1/2	3 1/4	1/4	4	95	82	192	35	.....
G. W. W. Super	3	1 1/4	1 1/4	1 1/4	V	8	1 1/4	17 1/2	1 1/4	37 1/2	1 1/4	F	49	2 1/2	1/4	2	47	1 1/2	1/4	2	89	72	192	32	11 1/2
Harvey WOA-2	4	1 1/4	1 1/4	1 1/4	V	11	2	14	1 1/4	35 1/2	2	F	45	2	1/4	2	45	2	1/4	2	139	87	242 1/2	32	10
Harvey WFB-2 1/2	4	1 1/4	1 1/4	1 1/4	V	11	2	14	1 1/4	35 1/2	2	F	50	2 1/4	1/4	2	50	2 1/4	1/4	2	139	87	242 1/2	32	10
Harvey WHB-3 1/2	4	1 1/4	1 1/4	1 1/4	V	12	2	14	1 1/4	36 1/2	2	F	20 1/4	4	1/4	4	20 1/4	3	1/4	4	151 1/2	85 1/2	258 1/2	35	9
Harvey WFT-6	4	1 1/4	1 1/4	1 1/4	V	11	2	14	1 1/4	36 1/2	2	F	50	2 1/4	1/4	2	50	2 1/4	1/4	2	84	52	189	32	10
Harvey WHT-10	4	1 1/4	1 1/4	1 1/4	V	12	2	14	1 1/4	36 1/2	2	F	20 1/4	4	1/4	4	20 1/4	3	1/4	4	86	52 1/2	191 1/2	35	9
Hawkeye O	4	1 1/4	1 1/4	1 1/4	V	12	2	9	1 1/4	.....	1 1/2	F	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hawkeye K	4	1 1/4	1 1/4	1 1/4	V	12	2	9	1 1/4	.....	2	F	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hawkeye M	4	1 1/4	1 1/4	1 1/4	V	12	2	9	1 1/4	.....	2	F	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hawkeye N	4	1 1/4	1 1/4	1 1/4	V	14	2 1/2	12	1 1/2	.....	2 1/2	F	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indiana 15-1 1/2	3	1 1/4	1 1/4	1 1/4	V	17	1 1/4	14	1 1/4	38 1/2	1	F	19	2	1/4	4	19	2	1/4	4	114	67 1/2	213 1/2	34	10 1/4
Indiana 20-2	3	1 1/4	1 1/4	1 1/4	V	6	1 1/4	13	1 1/4	26 1/2	1 1/2	F	22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	126	74 1/2	226 1/2	33	10 1/4
Indiana 25-2 1/2	3	1 1/4	1 1/4	1 1/4	V	6	1 1/4	13	1 1/4	26 1/2	1 1/2	F	22 1/4	2 1/4	1/4	4	22 1/4	2 1/4	1/4	4	138	81	229 1/2	33	9 1/2
Indiana 35-3 1/2	3	1 1/4	1 1/4	1 1/4	V	6	1 1/4	13	1 1/4	26 1/2	1 1/2	F	20 1/4	.....	1/4	4	20 1/4	.....	1/4	4	139	79 1/2	244 1/4	34 1/2	8 1/2
Indiana 51-5	3	1 1/4	1 1/4	1 1/4	V	10	1 1/2	17 1/2	1 1/2	40 1/2	1	F	65 1/2	3	1/2	2	65 1/2	3	1/2	2	152 1/2	87	260	37 1/2	10 1/2
Inter'l S-2000 lbs.-Sp. Tr.	3	1 1/4	1 1/4	1 1/4	V	9 1/4	1 1/2	17 1/2	1 1/2	30 1/4	1	F	38	2	1/4	2	36	2	1/4	2	88	.....	.....	.....	.....
International 33-3000 lbs.	4	1 1/4	1 1/4	1 1/4	V	6 1/4	1 1/2	13	1 1/2	43 1/2	1 1/2	F	43 1/2	2 1/4	1/4	2	43 1/2	2 1/4	1/4	2	101 1/2	57 1/2	194 1/4	34	11 1/2
International 43-4000 lbs.	4	1 1/4	1 1/4	1 1/4	V	6 1/4	1 1/2	13	1 1/2	43 1/2	1 1/2	F	50 1/2	2 1/4	1/4	2	50 1/2	2 1/4	1/4	2	109	59 1/2	202	32 1/2	11 1/2
International 63-6000	4	1 1/4	1 1/4	1 1/4	V	9	1 1/2	14 1/2	1 1/2	46	1 1/2	F	50 1/2	2 1/4	1/4	2	50 1/2	2 1/4	1/4	2	116 1/2	67 1/2	213 1/4	34	11 1/2
International 103	4	1 1/4	1 1/4	1 1/4	V	9	1 1/2	14 1/2	1 1/2	51	1 1/2	F	50 1/2	2 1/4	1/4	2	50 1/2	2 1/4	1/4	2	146	87 1/2	244	34	12 1/2
Kelly-Springfield K70-1 1/2-2	4	1 1/4	1 1/4	1 1/4	V	12 1/4	1 1/2	16	1 1/2	41 1/2	1 1/2	F	17 1/2	2 1/2	1/4	4	17 1/2	1 1/2	1/4	4	132	81	230	34	10
Kelly-Springfield K41-3 1/2-5	4	1 1/4	1 1/4	1 1/4	V	6 1/4	1 1/2	24	1 1/2	59 1/2	1 1/2	F	3 1/2	4 1/2	1/4	12	58	2 1/2	1/4	2	144	87	248	36	9 1/2
Kelly-Springfield K61-5 to 7	4	1 1/4	1 1/4	1 1/4	V	6 1/4	1 1/2	24	1 1/2	59 1/2	1 1/2	F	3 1/2	4 1/2	1/4	12	58	2 1/2	1/4	2	144	87	248	36	9 1/2
Kelly-Springfield K75-2 1/2	4	1 1/4	1 1/4	1 1/4	V	7	1 1/2	13	1 1/2	41 1/2	1 1/2	F	3 1/2	4 1/2	1/4	12	21 1/2	2 1/2	1/4	4	138	85	238	34	9 1/2
Kelly-Springfield K76-2 1/2	4	1 1/4	1 1/4	1 1/4	V	7	1 1/2	13	1 1/2	41 1/2	1 1/2	F	17 1/2	.....	1/4	4	17 1/2	1 1/2	1/4	4	138	85	238	34	9 1/2
Kenworth KS-2 1/2	4	1 1/4	1 1/4	1 1/4	V	12	2	14	1 1/4	36	2	.....	20	2 1/2	1/4	4	20	2 1/2	1/4	4	133	.....	.....	.....	.....
Kenworth M-1 1/2	4	1 1/4	1 1/4	1 1/4	V	12	2	14	1 1/4	36	2	.....	46	2	1/4	2	46	2	1/4	2	114	.....	.....	.....	.....
Kenworth L-3	4	1 1/4	1 1/4	1 1/4	V	13 1/2	2	16	1 1/2	36	2	.....	56	2 1/2	1/4	2	56	2 1/2	1/4	2	144	.....	.....	.....	.....
King Zeidler 1	4	1 1/4	1 1/4	1 1/4	V	11	1 1/2	15 1/2	1 1/2	40	1 1/4	F	11	3	1/4	4	11	3	1/4	4	Opt	Opt	Opt	32	10 1/2
King Zeidler 1 1/2	4	1 1/4	1 1/4	1 1/4	V	11	1 1/2	15 1/2	1 1/2	40	1 1/4	F	12 1/4	3 1/4	1/4	4	12 1/4	3 1/4	1/4	4	Opt	Opt	Opt	32	10 1/2
King Zeidler 2 1/2	4	1 1/4	1 1/4	1 1/4	V	12	1 1/2	16	1 1/2	41	1 1/2	F	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	Opt	Opt	Opt	32	10
King Zeidler 3 1/2	4	1 1/4	1 1/4	1 1/4	V	12	1 1/2	16	1 1/2	41	1 1/2	F	16	3 1/4	1/4	4	16	3 1/4	1/4	4	Opt	Opt	Opt	36	10 1/2
King Zeidler 5	4	1 1/4	1 1/4	1 1/4	V	14	2	22	2	42	1 1/2	F	19 1/2	4	1/4	4	19 1/2	4	1/4	4	Opt	Opt	Opt	36	10 1/2
Kissel 1 Ton.	3	1 1/4	1 1/4	1 1/4	V	12 1/4	1 1/4	10	1 1/2	46 1/4	2	F	11	3	1/4	4	12	3 1/4	1/4	4	102	58 1/2	201	34	.....
Kissel Utility 1 1/2	3	1 1/4	1 1/4	1 1/4	V	12 1/4	1 1/4	10	1 1/2	46 1/4	2	F	19	2	1/4	4	12	3 1/4	1/4	4	120	70 1/2	219	34	.....
Kissel Freighter 2	3	1 1/4	1 1/4	1 1/4	V	12 1/4	1 1/4	10	1 1/2	49	2	F	14	3 1/2											

## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE											BRAKE LINING								FRAME					
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length		Width		
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Front of Chassis
Moreland EX-2	3	1 1/4	1 1/4	1 1/4	V	9	1 1/2	14	1 1/2	42	1 1/4	F	12	3 1/4	1 1/4	4	12	3 1/4	1 1/4	4	132	79 1/2	226 1/4	34	.....
Moreland AX-3	3	1 1/4	1 1/4	1 1/4	V	9	1 1/2	13	1 1/2	42	1 1/4	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	174	101 1/4	253	34	.....
Moreland RX-5	4	1 1/4	1 1/4	1 1/4	V	8	1 1/2	14 1/2	1 1/2	42	2	F	15 1/2	3 1/4	1 1/4	4	15 1/2	3 1/4	1 1/4	4	192	115 1/4	271	38	.....
Moreland RC-Bus	3	1 1/4	1 1/4	1 1/4	H	8	1 1/2	11 1/4	1 1/2	24	1 1/2	F	49	2 1/2	1 1/4	2	46	2 1/2	1 1/4	2	156	100	256	34	7
Moreland EC-Bus	3	1 1/4	1 1/4	1 1/4	H	9	1 1/2	13	1 1/2	42	1 1/2	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	152	102	254	34	8
Moreland AC-Bus	3	1 1/4	1 1/4	1 1/4	H	9	1 1/2	13	1 1/2	42	1 1/2	F	15 1/2	3 1/4	1 1/4	4	15 1/2	3 1/4	1 1/4	4	171	114 1/4	271	44	7
Nash 2018-1-1 1/4	4	1 1/4	1 1/4	1 1/4	V	3	1 1/2	7 3/4	1 1/4	36	1	F	49 1/4	2	1 1/4	2	20	2 1/2	1 1/4	1	104 1/4	61	193	30 1/2	9 1/2
Nash 3018-2-2 1/4	4	1 1/4	1 1/4	1 1/4	V	3	1 1/2	7 3/4	1 1/4	44	1	F	50 3/8	2	1 1/4	2	20	2 1/2	1 1/4	1	118 1/4	65	207	31 1/2	9 1/2
Nash 4017-2-2 1/4	3	1 1/4	1 1/4	1 1/4	V	7	1 1/2	15	1 1/4	44	2	F	49 1/4	2 1/2	1 1/4	4	25 3/4	2 1/2	1 1/4	1	117 1/4	85 1/2	202 1/2	38 1/4	14 1/2
National M	4	1 1/4	1 1/4	1 1/4	V	16	2 1/2	15	2 1/4	40	1 1/4	F	12	3 1/4	1 1/4	4	12	3 1/4	1 1/4	4	116	65	208	34	9 1/2
National T	3	1 1/4	1 1/4	1 1/4	V	12	1 1/2	18	1 1/2	40	1 1/4	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	123 1/2	80 1/2	220	34	9 1/2
National NB-3 1/2	3	1 1/4	1 1/4	1 1/4	V	10	1 1/2	17	1 1/2	40	1 1/4	F	16	3 1/4	1 1/4	4	16	3 1/4	1 1/4	4	142	91	243	36	8 1/2
Nelson & LeMoon G-1	4	1 1/4	1 1/4	1 1/4	V	8	1 1/2	3 1/2	1 1/4	39 1/2	1 1/4	F	11 1/2	3 1/4	1 1/4	2	11 1/2	3 1/4	1 1/4	2	Opt	.....	.....	.....	11
Nelson & LeMoon G-1 1/2	4	1 1/4	1 1/4	1 1/4	V	8	1 1/2	3 1/2	1 1/4	39 1/2	1 1/4	F	11 1/2	3 1/4	1 1/4	2	11 1/2	3 1/4	1 1/4	2	Opt	.....	.....	.....	11
Nelson & LeMoon G-2	4	1 1/4	1 1/4	1 1/4	V	9	1 1/2	3 1/2	1 1/4	41 1/4	1 1/4	..	12	3 1/4	1 1/4	2	12	3 1/4	1 1/4	2	Opt	.....	.....	.....	11
Nelson & LeMoon G-3	4	1 1/4	1 1/4	1 1/4	V	9	1 1/2	3 1/2	1 1/4	41 1/4	1 1/4	..	13 1/2	3 1/4	1 1/4	2	13 1/2	3 1/4	1 1/4	2	Opt	.....	.....	.....	11
Nelson & LeMoon G-4	4	1 1/4	1 1/4	1 1/4	V	9	1 1/2	3 1/2	1 1/4	41 1/4	1 1/4	..	16 1/2	3 1/4	1 1/4	2	16 1/2	3 1/4	1 1/4	2	Opt	.....	.....	.....	11
Nelson & LeMoon G-5	4	1 1/4	1 1/4	1 1/4	V	12	2	6	2	40 1/2	2	..	18	4	1 1/4	2	18	4	1 1/4	2	Opt	.....	.....	.....	11
Netco DK-2	3	1 1/4	1 1/4	1 1/4	V	12	1 1/2	16	1 1/4	40 1/2	1 1/4	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	142	94	234 1/2	34 1/4	9
Netco HL-2 1/2-3	3	1 1/4	1 1/4	1 1/4	V	13	1 1/2	16	1 1/4	41 1/4	1 1/4	F	13 1/2	3 1/4	1 1/4	4	13 1/2	3 1/4	1 1/4	4	139 1/2	93 1/2	234 1/2	34 1/4	9
Noble A-76-1 1/2	4	1 1/4	1 1/4	1 1/4	V	10	1 1/2	12 1/2	1 1/4	33 1/2	1 1/4	F	47	2 1/2	1 1/4	2	45	2 1/2	1 1/4	2	100	58	191	34	.....
Noble A-21-1 1/2	4	1 1/4	1 1/4	1 1/4	V	10	1 1/2	12 1/2	1 1/4	33 1/2	1 1/4	F	19	2	1 1/4	2	19	2	1 1/4	2	102	74	203	34	.....
Noble B-31-2	4	1 1/4	1 1/4	1 1/4	V	7	1 1/2	16 1/2	1 1/4	34 1/4	1 1/4	F	43	2	1 1/4	2	43	2	1 1/4	2	126	80	221	34	.....
Noble D-52-3	4	1 1/4	1 1/4	1 1/4	V	9	2	12	1 1/4	34 1/4	1 1/4	F	21	2 1/4	1 1/4	4	21	2 1/4	1 1/4	4	.....	101	207	34	.....
Noble E-72-4	4	1 1/4	1 1/4	1 1/4	V	14 1/2	2	16	1 1/4	34 1/4	1 1/4	F	57	2 1/4	1 1/4	2	57	2 1/4	1 1/4	2	.....	114	218	36	.....
Northway B-2-2	3	1 1/4	1 1/4	1 1/4	V	5 1/2	2 1/4	13 3/8	1 1/4	46 1/2	1 1/4	V	50 1/2	2 1/4	1 1/4	2	50 1/2	2 1/4	1 1/4	2	133	62	223 1/2	33	9
Northway B-3 1/2	3	1 1/4	1 1/4	1 1/4	V	5 1/2	2 1/4	13 3/8	1 1/4	46 1/2	1 1/4	V	54	2 1/4	1 1/4	2	54	2 1/4	1 1/4	2	173	92	253 1/2	34 1/2	11
Ogden A-2-1	3	1 1/4	1 1/4	1 1/4	H	12	2	6	2	44	3/4	V	11	2 1/2	1 1/4	4	11	2 1/2	1 1/4	4	108	56	186	33 1/4	10 1/2
Ogden D-1 1/2	3	1 1/4	1 1/4	1 1/4	V	13	2	12	2	44	3/4	V	10 3/8	3	1 1/4	4	10 3/8	3	1 1/4	4	120	.....	.....	33 1/4	.....
Ogden E-2 1/2	3	1 1/4	1 1/4	1 1/4	V	10	1 1/2	14	1 1/4	30	1 1/4	F	52	2 1/4	1 1/4	1	52	2 1/4	1 1/4	1	144	.....	.....	33 1/4	.....
Ogden F-3 1/2	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	16	1 1/2	36	1 1/2	F	15 1/2	3 1/4	1 1/4	4	15 1/2	3 1/4	1 1/4	4	168	.....	.....	37	.....
Ogden G-5	3	1 1/4	1 1/4	1 1/4	V	9	2	18	2	40	2	F	11	6	1 1/4	2	25	4	1 1/4	4	168	.....	.....	37	.....
Oneida B9-2	3	1 1/4	1 1/4	1 1/4	H	9 1/2	1 1/4	9 1/2	1 1/4	38 1/2	1 1/4	F	48	2 1/2	1 1/4	2	34	2 1/2	1 1/4	2	114	.....	.....	34	.....
Oneida C9-2 1/2	3	1 1/4	1 1/4	1 1/4	H	9 1/2	1 1/4	9 1/2	1 1/4	38 1/2	1 1/4	F	58	2 1/2	1 1/4	2	43	2 1/2	1 1/4	2	138	.....	.....	34	.....
Oneida D9-3 1/2	3	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/4	40	2	F	16	3 1/4	1 1/4	4	16	3 1/4	1 1/4	4	155 1/4	.....	.....	36	.....
Oneida E9-5	3	1 1/4	1 1/4	1 1/4	H	7 1/2	1 1/2	9 1/2	1 1/4	40	2	F	18	4	1 1/4	4	18	4	1 1/4	4	177	.....	.....	38	.....
Oshkosh AW-2	3	1 1/4	1 1/4	1 1/4	H	16	2	17	2	33 1/4	1 1/4	F	23 3/8	3 1/4	1 1/4	1	43 1/2	2 1/2	1 1/4	2	108	75 1/2	189	34	.....
Oshkosh AAW-2	3	1 1/4	1 1/4	1 1/4	H	16	2	17	2	33 1/4	1 1/4	F	23 3/8	3 1/4	1 1/4	1	43 1/2	2 1/2	1 1/4	2	144	110 1/2	224	34	.....
Oshkosh BO-2 1/2	4	1 1/4	1 1/4	1 1/4	V	9 1/4	1 1/2	12	1 1/2	36 1/2	2	F	23 3/8	4 1/2	1 1/4	1	43 1/2	2 1/2	1 1/4	2	125	85 1/2	211	34	.....
Oshkosh BBO2 1/2	4	1 1/4	1 1/4	1 1/4	V	9 1/4	1 1/2	12	1 1/2	36 1/2	2	F	23 3/8	4 1/2	1 1/4	1	43 1/2	2 1/2	1 1/4	2	144	104 1/2	230	34	.....
Overland 1/2	4	1 1/4	1 1/4	1 1/4	H	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	31 1/4	29	127 1/4	26	9 1/2
Patriot 7R-1	3	1 1/4	1 1/4	1 1/4	H	8	2	9	2	39	1 1/4	F	40 1/2	1 1/4	1 1/4	1	40 1/2	1 1/4	1 1/4	1	93	56	184	33 1/4	11 1/4
Patriot 9-L-2	3	1 1/4	1 1/4	1 1/4	V	6	1 1/2	8	1 1/2	37	1 1/4	F	40 1/2	1 1/4	1 1/4	1	40 1/2	1 1/4	1 1/4	1	113	65	207	34	10
Patriot 11W-3	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	10	2	39	2	F	58	2 1/2	1 1/4	1	43	2 1/2	1 1/4	1	150	82	246	34	10
Penn 1	4	1 1/4	1 1/4	1 1/4	H	12	2 1/2	7 1/4	2 1/2	33 1/4	1 1/4	F	40	1 1/2	1 1/4	4	40	1 1/2	1 1/4	4	89	52	178	34	9 1/2
Penn 2	3	1 1/4	1 1/4																						



## Replacement Table—Continued

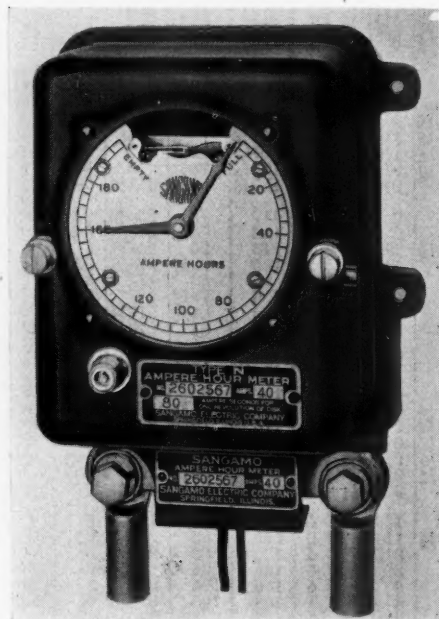
NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING								FRAME					
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service				Emergency				Length		Width			
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Selden 52	4	1 1/4	1 1/4	1 1/4	V	8 3/4	1 1/4	16 1/4	1 1/4	40 3/4	2	F	15 1/4	3 3/4	1 1/4	4	15 1/4	3 3/4	1 1/4	4	240	161	295	52
Selden 53B	4	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	16 1/4	1 1/4	40 3/4	2	F	13	3 3/4	1 1/4	4	13	3 3/4	1 1/4	4	136	82	244	34
Selden 70B	4	1 1/4	1 1/4	1 1/4	V	8 3/4	1 1/4	16 1/4	1 1/4	40 3/4	2	F	15 1/4	3 3/4	1 1/4	4	15 1/4	3 3/4	1 1/4	4	155	91	253	37 1/2
Selden 73B	4	1 1/4	1 1/4	1 1/4	V	9	1 1/4	14 1/4	1 1/4	40 3/4	2	F	15 1/4	3 3/4	1 1/4	4	15 1/4	3 3/4	1 1/4	4	155	91	253	37 1/2
Selden 90B	4	1 1/4	1 1/4	1 1/4	V	7	1 1/4	16 1/4	1 1/4	40 3/4	2	F	17 1/4	4	1 1/4	4	17 1/4	4	1 1/4	4	153	89	256	37 1/2
Service 25-1 1/4	3	1 1/4	1	1 1/4	V	12 1/2	1 1/4	13	1 1/4	32 3/4	1 1/4	F	20	1 1/4	1 1/4	4	20	1 1/4	1 1/4	4	106 3/4	65 3/4	203 1/4	32
Service 33-1 1/2	4	1 1/4	1 1/4	1 1/4	V	8	1 1/4	10	1 1/4	38	1 1/4	F	11	3	1 1/4	4	11	3	1 1/4	4	121	76 3/4	216 1/4	34
Service 42-2	4	1 1/4	1 1/4	1 1/4	V	10	2	10	1 1/4	38	1 1/4	F	11 1/4	3 1/4	1 1/4	4	11 1/4	3 1/4	1 1/4	4	117 1/4	81 1/4	216 1/4	34
Service 61-3	4	1 1/4	1 1/4	1 1/4	V	10	2	10	1 1/4	38	1 1/4	F	13 1/4	3 1/4	1 1/4	4	13 1/4	3 1/4	1 1/4	4	127 1/4	92 1/4	226 1/4	34
Service 81-4	4	1 1/4	1 1/4	1 1/4	V	10	2	11 1/2	1 1/4	40 3/4	2	F	15 1/4	3 1/4	1 1/4	4	15 1/4	3 1/4	1 1/4	4	144	100 1/4	245 1/4	38
Service 103-6	4	1 1/4	1 1/4	1 1/4	V	10	2	11 1/2	1 1/4	40 3/4	2	F	18	4	1 1/4	4	18	4	1 1/4	4	144	100 1/4	245 1/4	38
Standard 75-1 1/4	3	1 1/4	1	1 1/4	V	10 1/4	2 1/4	14 1/4	1 1/4	39 1/4	1 1/4	F	11 1/4	2 1/4	1 1/4	4	11 1/4	2 1/4	1 1/4	4	108	62 1/4	198	32
Standard 1 1/2 K-1-1 1/2	3	1 1/4	1 1/4	1 1/4	V	10 1/4	2 1/4	14 1/4	1 1/4	39 1/4	1 1/4	F	10 1/4	3	1 1/4	4	10 1/4	3	1 1/4	4	120	72 1/4	210	32
Standard 2 1/2 K-2 1/2-3	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	16	1 1/4	40 3/4	1 1/4	F	13 1/4	3 1/4	1 1/4	4	13 1/4	3 1/4	1 1/4	4	132	83	220 3/4	32
Standard 3 1/2 K-3 1/2-5	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	16	1 1/4	41 1/4	1 1/4	F	15 1/4	3 1/4	1 1/4	4	15 1/4	3 1/4	1 1/4	4	144	93 1/4	240	38
Standard 5K-5-7	3	1 1/4	1 1/4	1 1/4	V	8	1 1/4	3 1/2	1 1/4	42 1/4	1 1/4	F	17 1/4	4	1 1/4	4	17	4	1 1/4	4	144	93 1/4	244 1/4	38
Sterling 1 1/4	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	19	1 1/4	38	1 1/4	F	11 1/4	3 1/4	1 1/4	4	11 1/4	3 1/4	1 1/4	4	120	70	216	34
Sterling 2	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	19	1 1/4	38	1 1/4	F	13 1/4	3 1/4	1 1/4	4	13 1/4	3 1/4	1 1/4	4	120	70	216	34
Sterling 2 1/2	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	19	1 1/4	38	1 1/4	F	13 1/4	3 1/4	1 1/4	4	13 1/4	3 1/4	1 1/4	4	138	84	234	34
Sterling 3 1/2	3	1 1/4	1 1/4	1 1/4	V	13 1/4	1 1/4	22	1 1/4	40 3/4	1 1/4	F	15 1/4	3 1/4	1 1/4	4	15 1/4	3 1/4	1 1/4	4	144	85	245	38
Sterling 5-Worm	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	19	1 1/4	40 3/4	1 1/4	F	17 1/4	4	1 1/4	4	17 1/4	4	1 1/4	4	158	91	259	38
Sterling 5-Chain E.H.D.	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	19	1 1/4	40 3/4	1 1/4	F	56 1/4	3 1/4	1 1/4	2	29 1/4	4	1 1/4	1	158	97	259	38
Sterling 5-Ch. E.L.D.	3	1 1/4	1 1/4	1 1/4	V	13 1/4	1 1/4	22	1 1/4	40 3/4	1 1/4	F	56 1/4	3 1/4	1 1/4	2	29 1/4	4	1 1/4	1	158	97	259	38
Sterling 7 1/2	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	19	1 1/4	40 3/4	1 1/4	F	56 1/4	3 1/4	1 1/4	2	29 1/4	4	1 1/4	1	158	97	259	38
Stewart M15-1 1/4	3	1 1/4	1	1 1/4	V	10	1 1/4	19	1 1/4	37 1/4	1 1/4	F	41 1/4	2	1 1/4	2	22 1/4	2	1 1/4	1	99 1/4	67 1/4	213 1/4	32
Stewart M9-1 1/4	3	1 1/4	1	1 1/4	V	10	1 1/4	19	1 1/4	37 1/4	1 1/4	F	48 1/4	2	1 1/4	2	8	5	1 1/4	2	119 1/4	75 1/4	218 1/4	34
Stewart M7X	3	1 1/4	1	1 1/4	V	10	1 1/4	19	1 1/4	37 1/4	1 1/4	F	50 1/4	2	1 1/4	2	8	5	1 1/4	2	132 1/4	86	213 1/4	34
Stewart M10X	3	1 1/4	1	1 1/4	V	10	1 1/4	19	1 1/4	37 1/4	1 1/4	F	60	2	1 1/4	2	8	5	1 1/4	2	138	84	243	32
Super Truck 50	3	1 1/4	1 1/4	1 1/4	V	18 1/4	1 1/4	19	1 1/4	37 1/4	1 1/4	F	51 1/4	2 1/4	1 1/4	2	51 1/4	1 1/4	1 1/4	2	135	84	243	36
Super Truck 70	3	1 1/4	1 1/4	1 1/4	V	18 1/4	1 1/4	19	1 1/4	37 1/4	1 1/4	F	55 1/4	2 1/4	1 1/4	2	55 1/4	2 1/4	1 1/4	2	144	97 1/4	249	34
Super Truck 100	3	1 1/4	1 1/4	1 1/4	V	6	1 1/4	19	1 1/4	42	1 1/4	F	68	3	1 1/4	2	51 1/4	3	1 1/4	2	144	97 1/4	249	34
Traffic C-4000	3	1 1/4	1	1 1/4	H	10 1/4	2	10 1/4	2	41 1/4	1 1/4	F	43 1/4	2 1/4	1 1/4	2	38	1 1/4	1 1/4	2	120 1/4	67 1/4	213 1/4	42
Traffic 6000	3	1 1/4	1	1 1/4	H	10 1/4	2	10 1/4	2	41 1/4	1 1/4	F	52	3	1 1/4	2	47	2	1 1/4	2	120 1/4	69 1/4	213 1/4	34
Traffic Speedboy	3	1 1/4	1	1 1/4	H	10 1/4	2	10 1/4	2	41 1/4	1 1/4	F	43 1/4	2 1/4	1 1/4	2	38	1 1/4	1 1/4	2	120 1/4	69 1/4	213 1/4	34
Transport 15-1	3	1 1/4	1	1 1/4	H	10 1/4	2	13	2	40 1/4	1 1/4	F	48	2 1/4	1 1/4	2	46 1/4	2 1/4	1 1/4	2	98 1/4	57 1/4	188	34
Transport 26-1 1/2	4	1 1/4	1	1 1/4	V	9 1/4	2	13 1/4	1 1/4	34 1/4	1 1/4	F	48 1/4	2 1/4	1 1/4	2	46 1/4	1 1/4	1 1/4	2	113 1/4	70 1/4	201	34
Transport 36-2	4	1 1/4	1	1 1/4	V	10 1/4	2	16	1 1/4	33 1/4	2	F	10 1/4	3	1 1/4	2	46 1/4	1 1/4	1 1/4	2	120 1/4	72 1/4	210	34
Transport 61-3 1/2	4	1 1/4	1	1 1/4	V	9 1/4	2	16	1 1/4	33 1/4	2	F	11 1/4	3	1 1/4	4	48 1/4	2 1/4	1 1/4	2	127 1/4	78 1/4	218	34
Transport 75-5	4	1 1/4	1	1 1/4	V	12	2	16	1 1/4	35 1/4	2	F	11 1/4	3	1 1/4	4	58	2 1/4	1 1/4	2	150 1/4	93 1/4	251 1/4	36 1/2
Traylor B	4	1 1/4	1	1 1/4	V	10	2	6	1 1/4	38	1	F	50	2	1 1/4	2	50	2	1 1/4	2	117	75	204 1/4	34
Traylor C	4	1 1/4	1	1 1/4	V	12	2	12	1 1/4	36	2	F	50	2	1 1/4	2	50	2	1 1/4	2	122	73 1/4	218 1/4	34
Traylor D	4	1 1/4	1	1 1/4	V	12	2	12	1 1/4	36	2	F	56 1/4	2 1/4	1 1/4	2	56 1/4	2 1/4	1 1/4	2	142	76	241 1/4	34
Traylor F	4	1 1/4	1	1 1/4	V	14	2	14	1 1/4	37	2	F	59	2 1/4	1 1/4	2	59	2 1/4	1 1/4	2	165	92 1/4	273 1/4	35
Triangle AA-1	3	1 1/4	1	1 1/4	H	17	2	17	2	34	1	F	22 1/4	1 1/4	1 1/4	2	48	2 1/4	1 1/4	2	94	53	177	35
Triangle A-2	4	1 1/4	1	1 1/4	V	14	1 1/4	14 1/4	1 1/4	39 1/4	1 1/4	F	7 1/4	4	1 1/4	2	49	2	1 1/4	2	126			

## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING				FRAME			
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Length	Width	Thickness	No. of Pieces	Length	Width	
Willcox AA-1.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	47 1/2	2 1/2	1/4	2	33 1/4	2 1/2	34
Willcox B-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	47 1/2	2 1/2	1/4	2	33 1/4	2 1/2	33
Willcox C-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	57 1/2	2 1/2	1/4	2	42 1/2	2 1/2	33
Willcox E-3 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	57 1/2	2 1/2	1/4	2	42 1/2	2 1/2	33
Willcox F-5.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	69 3/4	3 1/2	1/4	2	52 1/2	3 1/2	36
Witt-Will P-2.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	48	3 1/4	1/4	4	48	3 1/4	32
Witt-Will SS-3.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	52	3 1/4	1/4	4	52	3 1/4	32
Witt-Will N-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	48	3 1/4	1/4	4	48	3 1/4	32
Witt-Will S-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	52	3 1/4	1/4	4	52	3 1/4	32
Yellow Cab M22.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	49	2 1/2	1/4	2	45	2 1/2	43
Yellow Cab M42-1 1/4.....	3	1 1/4	1 1/4	1 1/4	V	8 1/4	2	10 1/8	2	38 1/2	3/4	21 3/4	3	1/4	4	11	3	32
Yellow Cab Express T1.....	3	1 1/4	1 1/4	1 1/4	V	9 1/2	2	9 1/2	2	39 1/4	3/4	21 3/4	3 1/2	1/4	4	11 1/2	2 1/2	34 1/2

## Sagamo Type NT Amperehour Meter

The Sangamo Type NT meter, for electric truck service, recently marketed by the Sangamo Electric Co., Springfield, Ill., indicates the amount of battery discharge that has taken place. By comparative reading the operator can always tell what remaining capacity is available



Sangamo Automatic Meter

before the battery should be put on charge.

When the vehicle is placed on charge the Sangamo Ampere-hour Meter automatically gives the battery the proper overcharge and opens the charging circuit at the proper time, thus eliminating the need for attendance.

The Sangamo Type NT Meter is also adapted to the control of batteries requiring two-rate charging, for which purpose contacts at the gassing and full points are usually supplied.

## Dunlop Special Traction Solid

Dunlop Tire & Rubber Company, in a recent announcement, stated that the latest addition to its solid tire line is the



Dunlop's New Special Traction Solid Tire

Dunlop Special Traction Solid, which is being offered to the trade in four different sizes. It was specially designed to service dump-load trucks, particularly those that are frequently operated in mud, sand and clay. The design is claimed to considerably lessen the possibility of the development of heel and toe action, or cupping.

The construction of the tread is such as to permit soft substances being released while the tire obtains a firm grip on the road. The grooves extend over the rounded shoulders of the tire, which is further claimed to give it added ability to withstand severe strain.

Calculations, made by the U. S. Bureau of Public Roads, show that the average motor vehicle in use in the United States consumes 1.4 gallons of gasoline per vehicle per day. The Bureau figures that the average motor vehicle gets fourteen miles per gallon of gasoline. Accepting this figure as an average and multiplying it by 15,552,007—the number of vehicles registered on July 1 last—the Bureau arrives at the conclusion that the total daily mileage made by motor vehicles in use in the United States amounts to approximately 300,000,000. In two days the motor vehicles of the United States travel a greater mileage than do all of the passenger trains in an entire year, the Bureau estimates.

In its calculations the Bureau finds that the approximate gasoline consumption is around 800,000,000 gallons per month—last month it was 794,030,852. Of this total, 85 per cent is used in motor vehicles.

## Weaver Truck Ambulance

The Weaver Co., Springfield, Ill., is in production with a new truck ambulance. The ambulance was designed to answer the demand for a quick, safe and easy means of towing in disabled trucks and buses.



Ambulance for Trucks and Buses

Strength and simplicity in design are two outstanding features of this equipment. Load is supported by a 2 1/2-in. dead axle, which is securely fastened to the frame by two U bolts. Each wheel is supported on the axle by two sets of heavy S. K. F. ball bearings. Noise and vibration has been considerably reduced by heavy, solid-rubber, dual tires. The wheels are 8 1/2 in. wide, 16 in. diam. and the over-all width of the ambulance is 43 1/4 in. The load is guided by a heavy, one-piece, cast-steel yoke, which can be placed either in front of the ambulance axle or to the rear of it as the case may require. The pole is made in two sections, one telescoping within the other. The length is from 7 ft. to 13 ft. Shipping weight, 580 lbs.

## Pyrene Truck Tire Chains

Announcement is made by the Pyrene Mfg. Co. of the addition of a complete line of truck tire chains to supplement the Off'n'on passenger car chains manufactured by them. The new chains are known as the Pyrene Truck Chains. They are made in all sizes.



# Manufacturers and Models Included in the Specification Tables

List Includes Manufacturers of Buses and Electric Trucks

How Manufacturer Sells

Trade Name	Capacity	Name	Address	How Manufacturer Sells				
				Nation-ally	Locally	Branches	Distribu-tors	Dealers
Ace	2½-Bus	American Motor Truck Co.	Newark, Ohio	.....	Yes	.....	.....	.....
Acme	1, 1½, 2, 2½, 3, 4, 5, 6½-Bus	Acme Motor Truck Co.	Cadillac, Mich.	Yes	No	No	Yes	Yes
Acorn	2½, 4	Acorn Motor Truck Co.	Chicago, Ill.	No	Yes	No	No	No
American-La France	2½, 3½, 5, 6, 7-T. T.	American-La France Fire Engine Co.	Elmira, N. Y.	Yes	.....	Yes	No	Yes
Armleder	1½, 2½, 3½ T. T.	O. Armleder Motor Truck Co.	Cincinnati, Ohio	Yes	.....	1-N. Y. State only	.....	.....
Atterbury	1½, 2½, 3½, 5	Atterbury Motor Car Co.	Buffalo, N. Y.	Yes	No	No	Yes	Yes
Autocar	1, 1½, 1½, 2, 2½, 3, 4, 5, 6-T. T.	Autocar Co.	Ardmore, Pa.	Yes	.....	Yes	.....	Yes
Available	1½, 2, 2½, 3½, 5	Available Truck Co.	Chicago, Ill.	No	Yes	No	.....	.....
Bessemer	1, 1½, 2½, 4	Bessemer Motor Truck Co.	Plainfield, N. J.	.....	.....	.....	.....	.....
Bethlehem	1, 2, 2½, 3½	Bethlehem Motors Corp.	Allentown, Pa.	.....	.....	.....	.....	.....
Betz	1, 2½	Betz Motor Truck Co.	Hammond, Ind.	No	Yes	.....	No	No
Bridgeport	1½, 2½, 4-Bus	Bridgeport Motor Truck Corp.	Stratford, Conn.	Yes	Yes	Yes	Yes	Yes
Brinton	1½, 2, 2½, 3, 3½, 4, 5-Bus	Brinton Motor Truck Co.	Philadelphia, Pa.	.....	.....	.....	.....	.....
Brockway	1, 1½, 2, 2½, 3, 3½, 4, 5-Bus	Brockway Motor Truck Corp.	Cortland, N. Y.	Yes	.....	Yes	Yes	Yes
C. T. Elec.	½, ¾, 1, 2, 3, 3½, 5	Commercial Truck Co.	Philadelphia, Pa.	Yes	No	Yes	Yes	Yes
Casco	1	Casco Motors, Inc.	Sanford, Me.	.....	.....	.....	.....	.....
Chevrolet	½, 1	Chevrolet Motor Co.	Detroit, Mich.	.....	.....	.....	.....	.....
Clinton	1½, 2, 3, 4, 5 to 7-Bus	Clinton Motors Corp.	Reading, Pa.	.....	.....	.....	.....	.....
Clydesdale	1½, 2½, 3½, 5, 7	Clydesdale Motor Truck Co.	Clyde, Ohio.	Yes	No	No	Yes	Yes
Columbia	1½, 2½, 3	Columbia Motor Truck Co.	Pontiac, Mich.	.....	.....	.....	.....	.....
Commerce	1, 1½, 2, 2½-Bus	Commerce Motor Truck Co.	Ypsilanti, Mich.	Yes	No	No	Yes	Yes
Concord	1, 1½, 2, 2½, 3	Abbott-Downing Truck & Body Company	Concord, N. H.	.....	.....	.....	.....	.....
Corbitt	1, 1½, 2, 2½, 3, 4, 5	Corbitt Motor Truck Co.	Henderson, N. C.	Yes	.....	.....	Yes	Yes
Day-Elder	1½, 2, 2½, 3, 4, 5, 6-Bus	Day-Elder Motors Corp.	Newark, N. J.	Yes	.....	.....	Yes	Yes
Diamond T	1, 1½, 1½, 2½, 3½, 5	Diamond T Motor Car Co.	Chicago, Ill.	Yes	No	Yes	Yes	Yes
Dixon	1½, 2, 2½, 3½, 5	Dixon Motor Truck Co.	Altoona, Pa.	.....	Yes	.....	.....	.....
Dodge Brothers	¾	Dodge Brothers, Inc.	Detroit, Mich.	.....	.....	.....	.....	.....
Dorris	1, 2½, 3½	Dorris Motor Car Co.	St. Louis, Mo.	.....	.....	.....	.....	.....
Double Drive	3	Double Drive Truck Co.	Benton Harbor, Mich.	.....	.....	.....	.....	.....
Duplex	1, 1½, 2, 2½, 3½-Bus	Duplex Truck Co.	Lansing, Mich.	Yes	.....	No	.....	Yes
Eagle	1½, 2	Eagle Motor Truck Corp.	St. Louis, Mo.	.....	.....	.....	.....	.....
F. W. D.	3	Four-Wheel Drive Auto Co.	Clintonville, Wis.	Yes	.....	Yes	.....	Yes
Fageol	2, 3, 4, 6-Bus	Fageol Motors Co.	Oakland, Cal.	Yes	No	.....	.....	.....
Federal	1, 1½, 1½, 2, 2½, 4, 5-Bus, T. T.	Federal Motor Truck Co.	Detroit, Mich.	.....	.....	.....	.....	.....
Fifth Avenue	Bus	Fifth Avenue Coach Co.	New York City.	.....	.....	.....	.....	.....
Ford	1	Ford Motor Co.	Highland Park, Mich.	Yes	No	Yes	No	Yes
Front Drive	1½	Double Drive Truck Co.	Benton Harbor, Mich.	.....	.....	.....	.....	.....
Fulton	1, 2	Fulton Motors Corp.	Farmingdale, N. Y.	.....	.....	.....	.....	.....
G. M. C.	1, 2½, 3½, 5-T. T.	General Motors Truck Co.	Pontiac, Mich.	Yes	No	Yes	Yes	Yes
G. W. W.	1½, 2	Wilson Truck Mfg. Co.	Henderson, Iowa	.....	.....	.....	.....	.....
Garford	1, 1½, 4, 5, 7½-Bus	Garford Motor Truck Co.	Lima, Ohio	.....	.....	.....	.....	.....
Gary	1, 2, 2½, 3, 3½, 5	Gary Motor Corp.	Gary, Ind.	.....	.....	.....	.....	.....
Gottfredson	1, 1½, 2, 3, 4, 5	Gottfredson Truck Corp.	Detroit, Mich. & Walkerville, Ont.	Yes	.....	Yes	Yes	.....
Graham	1, 1½-Bus	Graham Brothers	Detroit, Mich.	.....	.....	.....	.....	.....
Gramm-Bernstein	1, 1½, 1½, 2, 2½, 3, 3½, 4, 5, 6	Gramm-Bernstein Motor Truck Co.	Lima, Ohio	.....	.....	.....	.....	.....
Grass Premier	1, 1½, 2, 2½, 3½	Grass Premier Truck Co.	Sauk City, Wis.	No	Yes	No	No	No
Gulder	1, 1½, 2, 3, 4, 5, 6-Bus	Gulder Engineering Co.	Poughkeepsie, N. Y.	.....	.....	.....	.....	.....
Hahn	1½, 1½, 2, 2½, 3, 5	Hahn Motor Truck Co.	Hamburg, Pa.	Yes	Yes	.....	.....	.....
Harvey	2½, 3½, 7, 10-T. T.	Harvey Motor Truck Co.	Harvey, Ill.	No	Yes	Yes	No	No
Hawkeye	1½, 2½, 3½	Hawkeye Truck Co.	Sioux City, Iowa	.....	.....	.....	.....	.....
Hug	1½, 2, 2½	Hug Company	Highland, Ill.	Yes	.....	.....	Yes	.....
Independent	1, 1½, 2½	Independent Motor Truck Co., Inc.	Davenport, Ia.	.....	.....	.....	.....	.....
Indiana	1, 1½, 2, 2½, 3½, 5	Indiana Truck Corp.	Marion, Ind.	Yes	Yes	Yes	Yes	Yes
International	1, 1½, 2, 3, 5-Bus	International Harvester Co. of America	Chicago, Ill.	.....	.....	.....	.....	.....
Kankakee	2½	Kankakee Motor Truck Co.	Kankakee, Ill.	.....	.....	.....	.....	.....
Kelland (Elec.)	½, ¾, 1	Kelland Motor Car Co.	Newark, N. J.	No	Yes	No	No	No
Kelly-Springfield	1½, 2, 2½, 3½-5-7	Kelly-Springfield Motor Truck Co.	Springfield, Ohio	Yes	No	Yes	Yes	Yes

Trade Name	Capacity	Name	Address	How Manufacturer Sells				
				Nation-ally	Locally	Branches	Distribu-tors	Dealers
Kenworth	1½, 3, 3½	Kenworth Motor Truck Corp.	Seattle, Wash.	No	Yes	No	Yes	Yes
Kimball	2, 2½, 4, 5	Kimball Motors Corp.	Los Angeles, Cal.	.....	.....	.....	.....	.....
King Zeitler	1, 1½, 2½, 3½, 5	King Zeitler Co.	Chicago, Ill.	.....	.....	.....	.....	.....
Kissel	1, 1½, 2½, 4-Bus	Kissel Motor Car Co.	Hartford, Wis.	Yes	.....	No	Yes	Yes
Kleiber	1½, 2½, 3½, 5	Kleiber Motor Truck Co.	San Francisco, Cal.	.....	.....	.....	.....	.....
Krebs	1¼, 2½, 3½, 5	Krebs Motor Truck Co.	Bellevue, Ohio	Yes	No	No	Yes	Yes
Lange	1½, 2½, 3½	Lange Motor Truck Co.	Pittsburgh, Pa.	.....	.....	.....	.....	.....
Lansden (Elec.)	¾, 1, 2, 3½, 5, 6	Lansden Company	Danbury, Conn.	Yes	.....	1-N. Y. State only	Yes	Yes
Larrabee-Deyo	1¼, 1½, 2½, 3½-Bus	Larrabee-Deyo Motor Truck Co., Inc.	Binghamton, N. Y.	.....	.....	.....	.....	.....
Luedinghaus	1, 1½, 2½, 3½, 5	Luedinghaus-Espenschied Wagon Co.	St. Louis, Mo.	.....	.....	.....	.....	.....
Maccar	1¼, 2, 3, 4, 5	Maccar Truck Co.	Scranton, Pa.	No	Yes	4	Yes	Yes
Mack	1½, 2, 2½, 3½, 5, 6½, 7½-Bus	International Motor Co.	New York, N. Y.	Yes	.....	86	.....	Yes
Mason Road King	1½-Bus	Mason Motor Truck Co.	Flint, Mich.	.....	.....	.....	.....	.....
Master	1¼, 1½, 2½, 3½, 5, 5½-Bus	Master Motor Truck Mfg. Co.	Chicago, Ill.	.....	.....	.....	.....	.....
Menominee	1, 1¼, 1½, 2½, 3½, 5-Bus	Menominee Motor Truck Co.	Clintonville, Wis.	.....	.....	.....	.....	.....
Moreland	1, 1½, 2, 3, 5	Moreland Motor Truck Co.	Burbank, Cal.	.....	.....	.....	.....	.....
Nash	1, 2, 2½	Nash Motors Co.	Kenosha, Wis.	Yes	No	No	Yes	Yes
National	2, 3, 3½, 4	National Steel Car Corp., Ltd.	Hamilton, Ont., Canada	Yes	No	2	No	Yes
Nelson-LeMoon	1, 1½, 2, 2½, 3½, 5	Nelson & Le Moon	Chicago, Ill.	.....	.....	.....	.....	.....
Netco	2½, 3, 4	New England Truck Co.	Fitchburg, Mass.	.....	.....	.....	.....	.....
Noble	1, 1½, 2, 2½, 3, 3½, 4	Noble Motor Truck Co.	Kendallville, Ind.	No	No	No	Yes	Yes
Northway	1¼, 3, 5	Northway Motors Corp.	Natick, Mass.	.....	.....	.....	.....	.....
O. B. (Elec.)	2, 3½, 5	O. B. Electric Vehicles, Inc.	Long Island City, N. Y.	.....	.....	.....	.....	.....
O. K.	1, 1½, 2, 2½, 3½	Nolan Truck Co.	Okay, Okla.	.....	.....	.....	.....	.....
Ogden	1, 1½, 2½, 3½, 5	Ogden Truck Co.	Chicago, Ill.	.....	.....	.....	.....	.....
Oneida	2, 2½, 3½, 5	Oneida Manufacturing Co.	Green Bay, Wis.	.....	.....	.....	.....	.....
Oshkosh	2, 2½, 4	Oshkosh Motor Truck Mfg. Co.	Oshkosh, Wis.	.....	.....	.....	.....	.....
Overland	½	Willys-Overland Co.	Toledo, Ohio	Yes	Yes	24	Yes	Yes
Patriot	1, 2, 3	Patriot Mfg. Co.	Havelock, Neb.	Yes	No	No	Yes	Yes
Penn	1, 2	Penn Motors Corp.	Philadelphia, Pa.	.....	.....	.....	.....	.....
Pierce-Arrow	2, 3, 4, 5, 6, 7½, T. T.	Pierce-Arrow Motor Car Co.	Buffalo, N. Y.	Yes	No	.....	Yes	Yes
Pioneer	1	Pioneer Truck Co.	Chicago, Ill.	.....	.....	.....	.....	.....
Power	1½, 2½, 3½	Power Truck & Tractor Co.	St. Louis, Mo.	.....	.....	.....	.....	.....
Rainier	¾, 1, 1½, 2, 2½, 3½, 5, 6	Rainier Trucks, Inc.	Long Island City, N. Y.	No	Yes	No	Yes	Yes
Red Ball	3	Red Ball Transit Co.	Indianapolis, Ind.	.....	.....	.....	.....	.....
Reo	1¼-Bus	Reo Motor Car Co.	Lansing, Mich.	.....	.....	.....	.....	.....
Republic	1¼, 1½, 2, 3, 4½-Bus	Republic Motor Truck Co., Inc.	Alma, Mich.	Yes	No	No	Yes	Yes
Rowe	2½, 3, 4, 5	Rowe Motor Mfg. Co.	Lancaster, Pa.	.....	.....	.....	.....	.....
Ruggles	¾, 1¼, 1½, 2, 2½, 3	Ruggles Motor Truck Co.	Saginaw, Mich.	.....	.....	.....	.....	.....
Rumely	1½	Advance Rumely Thresher Co.	Laporte, Ind.	Yes	No	30	Yes	Yes
Sandow	1, 1½, 2, 2½, 3½, 5	Sandow Motor Truck Co.	Chicago Heights, Ill.	Yes	No	.....	.....	.....
Sanford	1, 1½, 2½, 3½, 5	Sanford Motor Co.	Syracuse, N. Y.	Yes	.....	.....	Yes	.....
Saurer	6½, T. T.	Adolph Saurer, Inc.	New York, N. Y.	.....	Yes	Yes	No	Yes
Schacht	1½, 2, 2½, 3, 4, 5	G. A. Schacht Motor Truck Co.	Cincinnati, Ohio	Yes	.....	Yes	Yes	Yes
Selden	1¼, 1½, 2½, 3, 3½, 5-Bus	Selden Truck Corp.	Rochester, N. Y.	Yes	No	Yes	Yes	Yes
Service	1¼, 1½, 2, 3, 4, 5	Service Motors, Inc.	Wabash, Ind.	Yes	.....	Yes	Yes	Yes
Six Wheel Bus	Bus	The Six Wheel Co. of Phila.	Philadelphia, Pa.	Yes	.....	.....	.....	.....
Standard	1¼, 1½, 2½, 3½, 5, 6	Standard Motor Truck Co.	Detroit, Mich.	Yes	No	No	Yes	Yes
Steinmetz (Elec.)	.....	Steinmetz Electric Motor Car Corp.	Arlington, Balti-more, Md.	Yes	.....	.....	Yes	Yes
Sterling	1½, 2, 2½, 3½, 5, 7½-Bus	Sterling Motor Truck Co.	Milwaukee, Wis.	Yes	.....	Yes	Yes	Yes
Stewart	1, 1½, 2½-3, 3½-4	Stewart Motor Corp.	Buffalo, N. Y.	Yes	.....	Yes	Yes	Yes
Stoughton	1¼, 1½, 2, 3, 2½, 3½, 5	Stoughton Wagon Co.	Stoughton, Wis.	.....	.....	.....	.....	.....
Super Truck	.....	O'Connell Motor Truck Co.	Waukegan, Ill.	No	Yes	No	No	No
Traffic	1½, 2, 3	Traffic Motor Truck Corp.	St. Louis, Mo.	.....	.....	.....	.....	.....
Transport	1, 1½, 2, 3½, 5	Transport Truck Co.	Mt. Pleasant, Mich.	.....	.....	.....	.....	.....
Traylor	1½, 2, 3, 5	Traylor Eng. & Mfg. Co.	Allentown, Pa.	.....	.....	.....	.....	.....
Triangle	1, 1½, 2, 2½	Triangle Motor Truck Co.	St. Johns, Mich.	.....	.....	.....	.....	.....
Twin City	2½, 3, 3½	Minneapolis Steel & Machinery Co.	Minneapolis, Minn.	Yes	No	Yes	Yes	Yes
U. S.	1¼, 1½, 2½, 3, 4, 5-7	United States Motor Truck Co.	Cincinnati, Ohio	.....	.....	.....	.....	.....
Union	1½, 2½, 4, 6-Bus	Union Motor Truck Co.	Bay City, Mich.	Yes	Yes	.....	.....	Yes
United	1, 1½, 2, 2½, 3, 3½	United Motor Products Co.	Grand Rapids, Mich.	Yes	.....	Yes	Yes	Yes
Wachusett	1, 1½, 2, 2½	Wachusett Motors, Inc.	Fitchburg, Mass.	.....	Yes	.....	.....	.....
Walker (Elec.)	½, ¾, 1, 2, 3½, 5	Walker Vehicle Co.	Chicago, Ill.	.....	.....	.....	.....	.....
Walker Johnson	1½, 2½, 3	Walker Johnson Truck Co.	Woburn, Mass.	.....	.....	.....	.....	.....
Walter (Elec.)	T. T.	Walter Motor Truck Co.	Long Island City, N. Y.	Yes	Yes	.....	Yes	.....
Ward (Elec.)	750 lbs. to 7 ton	Ward Motor Vehicle Co.	Mt. Vernon, N. Y.	Yes	.....	Yes	Yes	Yes
Ward La France	2½, 3½, 5, 7-Bus	Ward La France Truck Corp.	Elmira, N. Y.	Yes	No	Yes	.....	Yes
White	¾, 2, 3½, 5-Bus	White Co.	Cleveland, Ohio	.....	.....	.....	.....	.....
Wilcox	1, 1½, 2½, 3½, 5	Wilcox Trux, Inc.	Minneapolis, Minn.	.....	.....	.....	.....	.....
Winther	1½, 2½, 3, 3½, 5, 7	Winther Motor Co.	Kenosha, Wis.	.....	.....	.....	.....	.....
Witt Will	1½, 2, 2½, 3, 4, 5	Witt Will Co., Inc.	Washington, D. C.	No	Yes	No	No	No
Yellow Cab	¾, 1-Bus	Yellow Cab Mfg. Co.	Chicago, Ill.	.....	.....	.....	.....	.....



## The Hersey Cushion Shackle

The Hersey Cushion Shackle, manufactured and distributed by the Gruss Minnesota Co., Minneapolis, Minn., is a shock absorber for rear end installations on commercial vehicles. It consists of three major elements, upper and lower elements and a replaceable cushion medium, which combine to form an unusual snubbing and shock absorbing principle. Installation is simple and can be effected by a mechanic in a few hours, as it only requires the removal of the rear shackle and shackle pin.

Upon analyzing the basic operating principle of the shackle it will be found that the 48-lb. weight of the unit acts as the snubbing agent while the rubber core acts as the shock absorber.

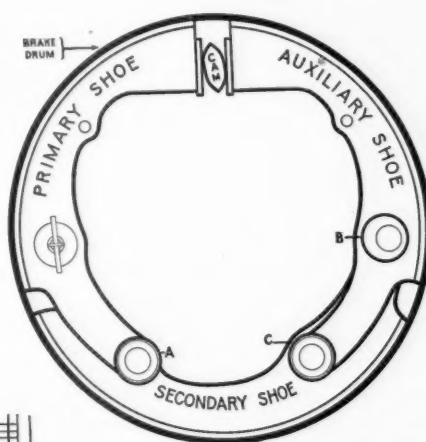
Referring to the accompanying illustration, when the wheel rises to an unevenness in the road the spring flattens out before the body commences to rise. This action lengthens the spring and throws point A forward, or to the rear of the vehicle, and the entire unit downward, the greatest travel in this movement being naturally at point C. The rubber core in the chamber or under the cover D absorbs the shock and vibrations. Sufficient space is allowed between the rubber and the walls to permit flowage of the rubber to the extent required as to permit about a two inch compression or closing up of the jaws D and B. The shackle bolts come almost together in this action.

The recoil is next accommodated. The natural recoil action of the spring and the

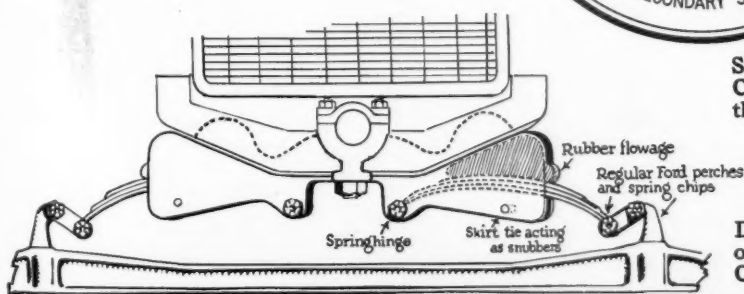
recoil of the rubber core is snubbed by the 48-lb weight of the shackle. When the truck spring starts to come back to its normal position point A is drawn back, but this action is checked or slowed up by the weight which must be lifted upward at the point C by the force of the recoil and the shortening of the spring.

The rubber core is triangular in shape, being thinnest almost at point C and widest at about midway between D and E where the rib is exposed on the upper jaw. The greatest rubber flowage is at the front end which end is also open from the rib to E permitting a larger flowage at the point where the thickest part of the rubber lays.

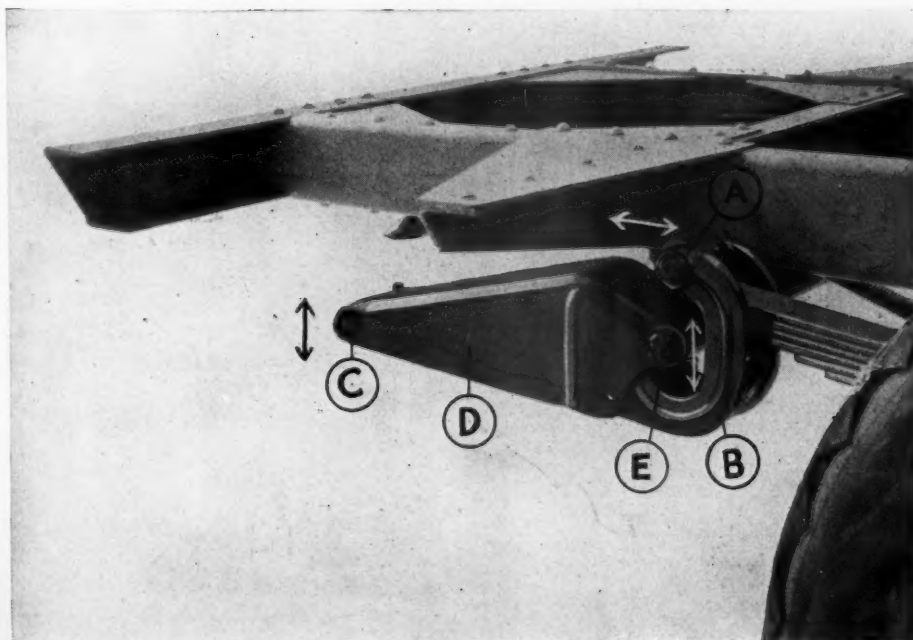
The price of the Hersey Cushion Shackle ranges from \$60 to \$125 for a complete set on trucks ranging in capacity from  $\frac{3}{4}$  to 3 tons.



Sketch Showing Construction of the Bendix Brake



Descriptive Views of the Hersey Cushion Shackle



## Bendix 4-Wheel Brake

The construction and servo action of the new Bendix 3 shoe self-energizing brake is interesting principally because of its simplicity and effective action. It will be manufactured in the factory of the Bendix Brake Co., South Bend, Ind., a subsidiary of the Bendix Corp.

The accompanying diagram illustrates the action. The primary shoe is a floating shoe anchored only to the secondary shoe at A. The secondary shoe is anchored to the backing plate at B. The auxiliary shoe is anchored to the backing plate at C. When pedal pressure is applied, the cam instantly actuates the primary shoe and through this primary shoe pressure is applied to the secondary shoe. Frictional force aids the primary shoe to force the secondary shoe against the drum, which is a decided servo action. This self-energizing feature is stated to multiply a gentle foot pressure into a powerful smooth braking action.

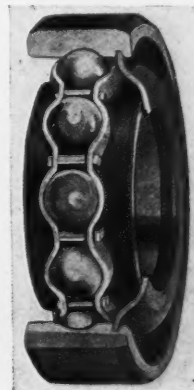
Another interesting feature of this brake is the large area of brake lining in contact with the brake drum. The Bendix brake gives 335 degrees of effective contact as against the 227 degrees of the conventional type of internal brake. Automatic equalization is another feature. A high spot on the lining of any one Bendix brake is stated to wear down until there is even pressure on four brakes.

## Lubricant Retained in New S. R. B. Pilot Bearing

Through the provision of a special retainer the new clutch pilot bearing now being marketed by Standard Steel and Bearings, Inc., Plainville, Conn., is designed to overcome the lubrication difficulty of the clutch bearing. Ordinarily this bearing, inaccessible and buried in the clutch, can not be properly reached for lubrication until the clutch is overhauled. The new bearing by reason of the retainer is stated to hold the initial supply of grease over a long period of time, keeping the bearing properly lubricated and free from dirt.

With the exception of the retainer this bearing is of conventional construction. The steel retainer is supported in a groove in the outer race just beyond the outer plans of the cage and is snapped into place.

Formed to closely fit the inner race, a compartment is provided to hold a considerable amount of lubricant and exclude foreign matter.



S. R. B. Clutch Pilot Bearing Designed to Retain Lubrication.

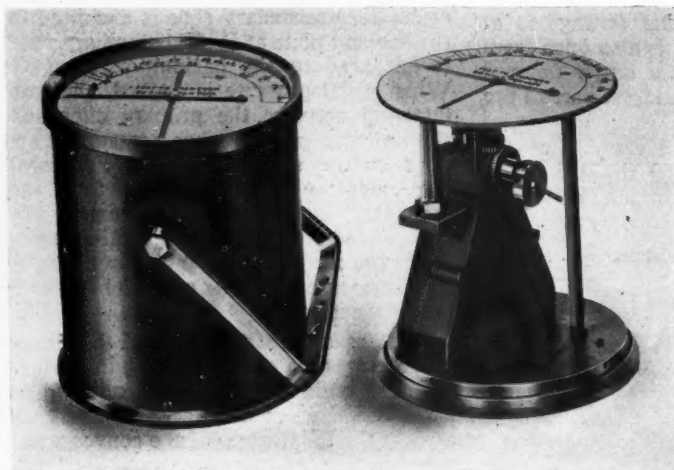
### James Brake Inspection Decelerometer

A convenient, rapid and accurate method of inspecting and determining the condition of brakes is provided by the James Brake Inspection Decelerometer. This new device, which can be picked up like a bucket and place into a vehicle under test, is almost uncanny in the accuracy of its recordings. It is designed particularly for

of the direction of the car motion. The vehicle is accelerated to any desired speed and the brakes are applied with as much force as possible. The pointer will indicate the stopping distance from 20 m.p.h. The faster the stop the greater the motion of the pointer, but the lower the reading.

The design of this instrument meets the approval of the Bureau of Standards, and the principle on which the instrument operates, is based upon the fundamental

laws of motion which are incontrovertible. All parts of the instrument are interchangeable, while the weight is about 10 lbs.



Known as the Decelerometer, This Device Automatically Tests Condition of Brakes.

use in service stations, garages, automotive vehicle manufacturers, research engineers and police authorities. It is manufactured by the American Instrument Co., Washington, D. C.

This new device does away with all the old makeshift forms of brake inspection, which at best depended upon the accuracy of the driver; an element most objectionable. With the Decelerometer a test may be made at any reasonable speed on any stretch of road, without the use of road markings. The instrument reads the distance in feet in which the car will stop from a speed of 20 m.p.h. regardless of the actual speed, be it more or less. All results are thus reduced to the same basis, the test is a simple one to perform, and all results are comparable.

In making a test the instrument is placed on the floor of the vehicle, with the direction arrow pointing along the line

### Lovejoy Duplex Hydraulic Shock Absorber

The Lovejoy Duplex hydraulic shock absorber of new design is suitable for truck, bus and passenger car use. The main difference between the Duplex model and the earlier model, according to the Lovejoy Manufacturing Co., Boston, Mass., is that two permanent adjustments are provided in the latest model. The light adjustment covers the range of normal city driving and automatically passes over control of the spring action to a heavier adjustment whenever severe road conditions are encountered.

The device works on the hydraulic principle. The vehicle equipped with them rides on a flexible cushion of oil which absorbs the rebound. The hermetical construction is such that the oil in which the working parts are immersed cannot escape,

nor can water or foreign matter gain entrance. After initial installation and adjustment further attention is not required.

The working principle of the Duplex is simple. On the rebound of the vehicle (refer to the illustration), the arm, connected by a noiseless flexible strap to the axle, is pulled down. This pull, acting through the arm shaft and lever, forces the piston down and creates an oil pressure or resistance which is controlled by the two relief valves. It is in these two valves that the two adjustments are obtained, the automatic operation of which depends on road conditions. When the shocks are severe the light or upper valve is entirely shut off turning over the control of the oil pressure to the heavy adjustment valve at the bottom.

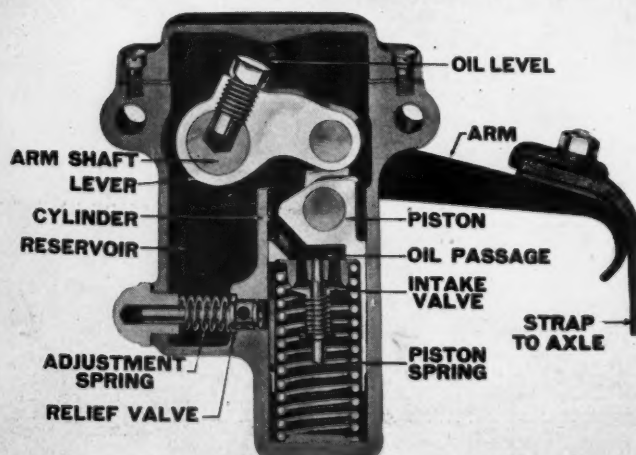
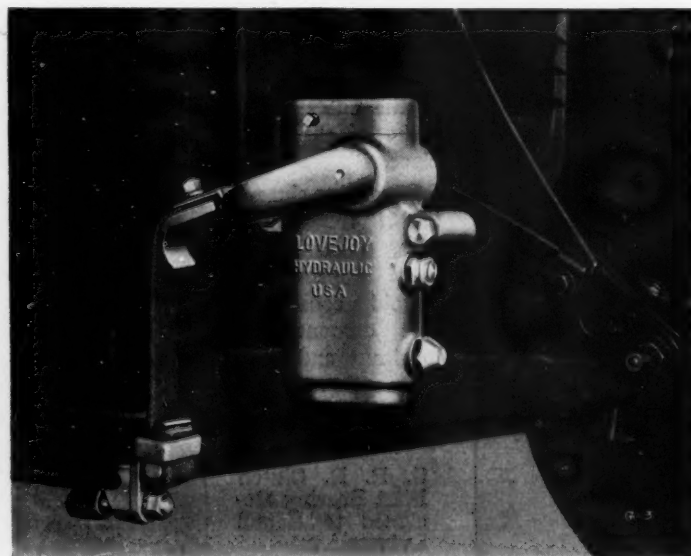
The price of model D is \$115 f. o. b. for a set of four with all attachments.

### Koupet California Tops

By mounting a convertible Koupet California Top, manufactured by the Koupet Auto Top Co., Belleville, Co., and a commercial body on a Ford Roadster practically any light delivery requirement can be met. The Koupet top converts the Roadster into an ideal delivery unit for use throughout the year and protects the driver in inclement weather. Installation of the top can be accomplished in a few hours by any mechanic, as the regular Ford top support brackets are used.

One of the features of the top is the double ventilating windshield with automatic stop-action hinges. Another is the swinging door which is equipped with a handle for controlling the lock in the Ford door. Both doors are securely linked together. The upper door, however, can be detached for summer operation by removing the pins from the hinges.

The frame is made of wood screwed and glued together. The bow supported roof is covered with waterproof rubberized fabric. The sides of the roof are well padded for shape and are provided with troughs to prevent rain from dripping on windows. The windshield is built in, joining firmly with the roof and sides.



Assembled and Cutaway Views of the Lovejoy Hydraulic Shock Absorber



# Rolled Steel Truck Wheels

**N**O truck wheel ever passed more severe tests than those to which the Bethlehem Rolled Steel Truck Wheel was recently subjected by the U. S. Bureau of Standards at Washington, D. C.

These tests conclusively proved the ability of the Bethlehem Rolled Steel Truck Wheel to stand up under far more severe punishment than any wheel is ever likely to receive in actual everyday use. They also demonstrated finally and beyond question the capability and stamina of the Bethlehem Rolled Steel Truck Wheel.

The conclusion arrived at by the U. S. Bureau of Standards was:

"The I-beam type of wheel was the strongest and most resilient metal wheel tested."

To insure satisfactory performance, specify Bethlehem Rolled Steel Truck Wheels on your next order.

Send us your inquiries.

Full report of Bureau of Standards tests will gladly be sent on request, together with a copy of our new catalog showing improved designs of truck wheels.



## BETHLEHEM STEEL COMPANY

General Offices: BETHLEHEM, PA.

Sales Offices in the following Cities:

New York, Boston, Philadelphia, Baltimore, Washington, Atlanta,  
Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis,  
San Francisco

# BETHLEHEM

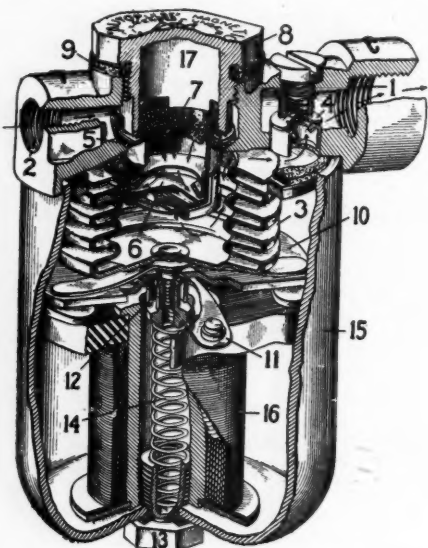
## Rolled Steel Truck Wheels

## Autopulse Magnetic Fuel Pumps

An electrically operated gasoline feed device, known as the Autopulse magnetic fuel pump, has been brought out by the Ireland & Matthews Mfg. Co., Detroit. Gasoline is drawn from the supply line and delivered to the carburetor by the pumping action of a brass bellows which is expanded by an electromagnet energized from the battery.

Referring to Fig. 1, the winding on the electromagnet 16 is connected to the ignition switch and consequently current flows through it as soon as the switch is closed. The armature 10 has a three point mounting consisting of three hardened steel balls, two below and one above, and is free to move up and down in a manner similar to a hinge. The center of the base of the bellows 3 is attached to the armature.

The pull exerted on the armature by the electromagnet causes it to move downward thus expanding the bellows. This



Cutaway Disclosing Mechanical and Electrical Construction

motion also compresses the helical spring 14. A pair of tungsten contacts are included in the electrical circuit. One of these can be seen at 11. This contact is mounted on a flat phosphor bronze spring attached to which is the steel sleeve 12. This sleeve projects part way into the electromagnet and is concentric with its axis. When the current flows, the magnetic action is on the sleeve, is such that it moves upward toward the armature thus stressing the spring 11 and increasing the pressure on the contacts. This occurs during the downward stroke of the armature. It prolongs the contact time and the release of the spring gives a more rapid break after the downward motion of the armature opens the circuit by separating the contacts. The cycle is completed by the upward motion of the armature caused by the spring 14 and the closure of the contacts. The stroke length is controlled by the action and set of the spring 11.

Gasoline is drawn into the pump by the expansion of the bellows. It enters

at 2 and passes through slots in the wall of the cap 8 under the chamber 17. It then passes through the screen 7 and enters the bellows through the spring controlled, monel metal valve 6. Discharge is through the automatic valve 4 and the outlet 1.

The output of the pump depends on the rate at which gasoline is withdrawn from the carburetor float chamber—in other words, the rate of fuel consumption. The force exerted by the spring 14 is not sufficient to compress the bellows and force gasoline into the float chamber when it is full. However, as soon as sufficient fuel is withdrawn to open the needle valve, the spring 14 compresses the bellows, thus discharging the fuel and closing the contacts. The pump then takes a suction stroke and pumping continues at greater or less capacity depending upon the needle valve opening. The Autopulse delivers gasoline to the carburetor only as needed and that, when it is not pumping, no current is withdrawn from the battery.

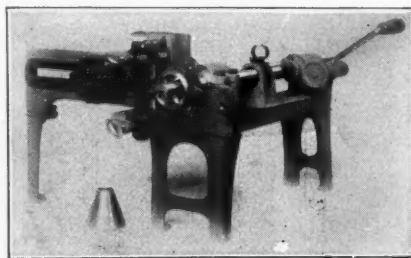
When pumping gasoline the stroke of the armature is from .025 to .030 in. and the maximum speed is from 800 to 1000 strokes per minute. About 5000 strokes are required to deliver a gallon of fuel. Assuming that the engine of the average car consumes gasoline at the rate of 1.5 gal. per hour, the pump would operate at an average speed of about 185 strokes per minute.

The current required by the Autopulse in making a stroke is said to be in the neighborhood of one ampere. However, due to the intermittent demand, the average current or meter reading is stated to be from  $\frac{1}{4}$  to  $\frac{1}{2}$  amp. when pumping at rated capacity. On a 6-v. battery the current consumption is given as 50 amp. hrs. per 1000 gal. delivered.

The life of the device is measured by the number of gallons pumped and laboratory tests indicate that it is capable of delivering from 10,000 to 20,000 gal. Few cars use more than 1000 gal. a year so the life of the unit is greater than that of the car. Wear of contacts and hearings causes a reduction in pressure and capacity but this is said not to exceed 10 per cent for 6000 gal.

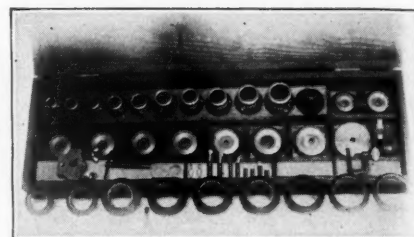
## Green Connecting Rod Babbitter and Fitter

Jno. Green & Sons, Inc., 221-227 N. Market St., Hoopeston, Ill., is offering a practical and complete machine for casting bearings in connecting rods. It will machine the bearings to any desired bore



The No. 2 Green Rebabbiting and Bearing Fitting Machine

Note the centering cone on the floor. The boring bar is shown operated by the crank.



Case of equipment that accompanies the Green Rebabbiting Machine

It includes mandrels, centering cones, top and bottom flange plates, boring and filleting tools, aligning V block, etc.

and width. Split bronze back and other types of bearings can also be rebabbitted and machined by this machine. It is known as the Green No. 2 Bearing Rebabbiting and Fitting Machine.

Simplicity of operation and construction is such that the average mechanic can rebabbitt and fit any connecting rod bearing very quickly.

A feature of the machine lies in the fact that the babbitt is cast concentric with the bearing aperture. Accuracy is assured by means of machine finished babbitting mandrels and aperture centering cones. Being centered on the boring bar of the boring machine uniform thickness of the bearing is also assured.

The machine can also be used as a piston aligner by the addition of a special mandrel. The standard equipment accompanying the machine will take care of any rod up to 15 inches measured from center to center. Diameter range of bearings capable of being handled is from  $1\frac{1}{4}$  in. to  $2\frac{1}{2}$  in. The boring length is 6 inches. Special equipment if desired can be secured.

## Manley Duplex Brake Relining Machine

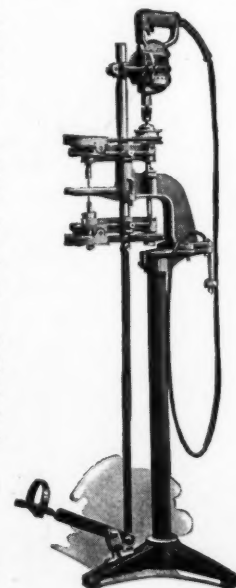
The holes in the brake band are used as a template and countersinking is accomplished from underneath by reverse action by the new Manley Duplex Brake Relining Machine put out by the Manley Mfg. Co., York, Pa.

Countersinking is done by reversing the action of the drill head which brings the countersink in contact with the brake band from underneath. A guide pin is used on the countersink, which engages the hole drilled from above. This, it is stated, will insure a perfect alignment with the holes in the brake drum.

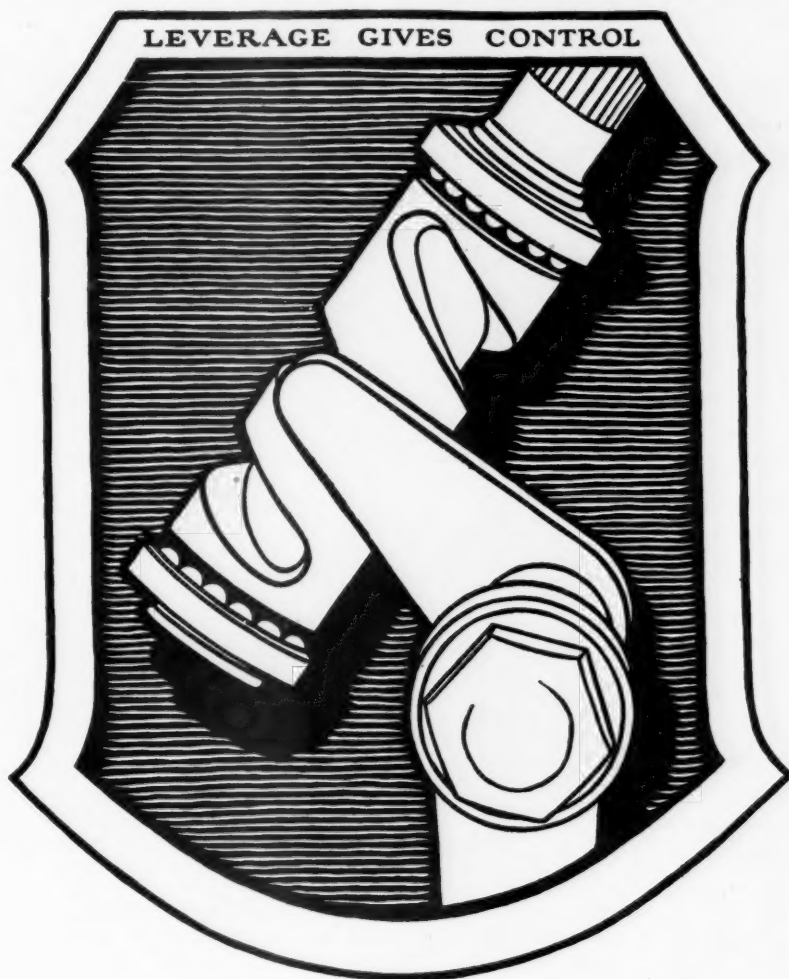
Construction is simple, consisting of a vertical shaft, carrying two horizontal arms operating in unison.

The price is \$32.50.

Manley Reliner







## *Jerked Into Jeopardy*

**A** ROUGH, hard winter road—a rut—the steering wheel jerked from your grasp—a steep ditch! It all happens in an instant.... But not with Ross Cam and Lever Steering Gears. With Ross it *can't* happen. Surer control and greater safety are among the many Ross advantages. *Write for the facts.*

*At the Chicago Show—Space No. 1, North Hall Gallery*

ROSS GEAR AND TOOL COMPANY, 760 Heath Street, Lafayette, Indiana

**ROSS**  
**CAM and LEVER**  **STEERING GEARS**  
**EASIER STEERING    LESS ROAD SHOCK**

## Cab Review

(Continued from page 19)

### SYRACUSE CAB No. 205

Syracuse Mfg. Co., Syracuse, Ind.

This cab is of the closed type and is standard in construction fitting on light commercial chassis. It is designed and constructed for hard service. The doors swing back and latch for warm weather driving. The windshield is full ventilating. A new steel cab for one ton Fords and Chevrolets will shortly be offered by this company. Its principal features are its solid back without roll-up curtain, left hand door opening directly beside the driver, non-rattling window designed to make signalling easy and a two section cushion to make the gas tank accessible.

### HIGHLAND CAB MODEL D

The Highland Body Mfg. Co.  
Cincinnati, Ohio

This cab is described as a universal unit. The doors are arm high and roll back into pockets beside the driver's seat, where they automatically lock. The windows slide and fold as they open and when not required are locked into the rear corner. The rear window is of the



Highland Cab

drop sash type. The windshield is of the clear vision, full ventilating type. Both sashes swing on heavy hinges. Seat cushions arranged in pairs, are of the deep, spring type. Built for strength the rear corner panels are of heavy steel and the sills, roof deck and dash are of oak. Quiet running and flexibility are claimed to be secured by the design. Built in three sizes, the cabs are adjustable to fit the chassis on which they are to be mounted and to make the seat accessible from either side.

### AUBURN BUILT CAB

Auburn Wagon Co., Martinsburg, W. Va.

Entire framework is of hardwood. Wide drop sashes equipped with anti-rattlers are provided in both sliding doors and at the driver's seat. By reason of a special device the doors slide with ease and without rollers or hangers. A special door lock also retains the door in any position without jar or rattle. The windshield which is of the rain vision type contains plate glass and affords maximum vision. A

rear window is provided. Comfortable cushion and lazy back. The oak roof supports a one-piece Novasote top. Bolts are used entirely in the assembly of this cab.

### SPRINGBORO CAB

Springboro Mfg. Co., Springboro, Pa.

Although designed for Ford and Chevrolet ton trucks the Springboro body can with a few adjustments be used on practically any one-ton job. It is of hard wood construction throughout, substantially ironed, bolted and screwed. The ventilating windshield and the sliding doors which are operated from the outside are easily adjusted. The doors are readily locked in any position by an eccentric clamp. The side sections contain swing windows and the doors drop sashes. The cushion, 18 x 38 x 4 in., is built on the two-piece spring construction, covered with imitation leather.

### JOHNSTON CABS

Fort Smith Body Co., Fort Smith, Ark.

This cab is of the convertible type and is designed for commercial chassis of one ton capacity. It is furnished with either storm curtains or panel doors, open back with roll-up curtain, or solid back with sliding window. The platform is constructed of hardwood. The windshield is similarly constructed and is of the double-acting ventilating type. Firmly bowed the top is slatted over solid with wood strips, covered with oiled duck. The seat box which covers the gas tank has two side and one long tool box compartments. Spring cushions covered with imitation leather are provided. The panels are of sheet steel.

## Why I Have to Stop Selling Trucks

(Continued from page 14)

list price. Pretty mess, I'll say and repeat as often as necessary.

"That last guy didn't beat me up but he licked me just the same. After telling me what he thought he just went around and told everyone of the customers what kind of a deal I had made with him and each of the others.

"A friend of mine who reads history says they used to pour hot lead in a man's ears to punish him. Say that was mild to the punishment that meek little list price guy handed me. Say if there was two votes cast here for dog catcher I would be arrested for repeating. I am telling the world in high-priced type that I am finished with selling trucks around here. If I had only thought about it sooner and played the game right I wouldn't be in this mess. But all I can do is quit, and quit out loud so everybody can see and hear me. Then maybe I can get back some of my garage and passenger car trade. But it will take quite awhile. 'List Price Bill' and a laugh is the nickname I suffer from now. But I'm cured.

"Missus wanted to go down town to a bargain sale today. I told her it would be about ten years before I would let her go near anything reduced. So long, John."

## Racine Announces 1925 Series

The Racine Radiator Co., Racine, Wis., has just announced its new 1925 series of improved radiators for 1917-1923, and 1924 models.

The newest improvements relate particularly to the tanks. Both the top and bottom tanks are made entirely of one piece of heavy-gauge seamless drawn brass. Among the other improvements are:

Top tank reinforced by longitudinal and lateral bracing ribs. Lower tank made with a curved bottom. This construction is said to distribute the water load in such a way that it cannot possibly crack or break the tank. The inlet casting is more securely fastened than before since 5 copper rivets are now used instead of 4. Appearance of the shell has been improved and a better fit between the shell and the radiator has been secured.

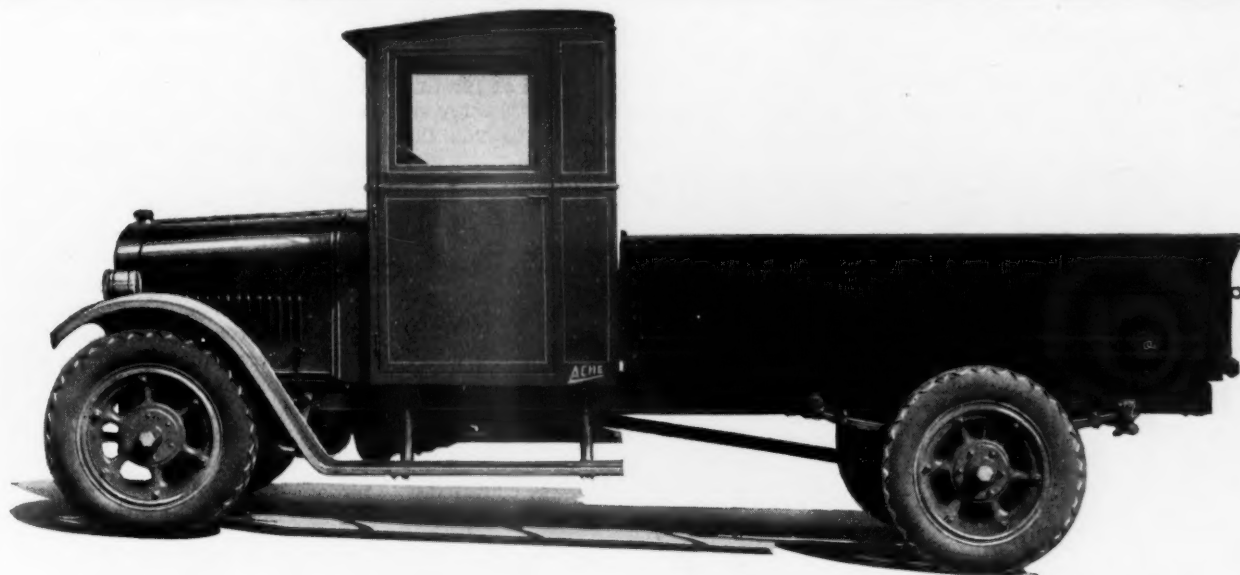
An improvement which will appeal to Ford owners is the all-bronze core in which the wide, straight water channels are made up of one piece of bronze, the only joint which is on the motor side, being double locked-seamed and carefully soldered inside and out. No amount of freezing can damage this core. The bronze serating wings carefully soldered between water channels, provide extra radiating surface without affording a place for dust and mud to collect. A patented spring bracket suspension holds the radiator firmly in place and at the same time relieves it from all strain due to twisting or weaving of the chassis.



Black & Decker No. 3 Reversible Socket Wrench

The Black & Decker Mfg. Co., Towson, Maryland, recently put on the market its No. 3 Reversible Electric Socket Wrench which is particularly adapted to assembling and disassembling engines. This machine is essentially the same in construction and design as the company's portable electric drills except that the spindle is provided with a clutch which automatically releases when the forward pressure on the tool is relieved. Due to the design of this clutch, a nut, bolt or stud can be driven to any desired tightness. A reversing switch is provided for use in disassembling. The wrench has ample power to kick loose tight nuts or bolts and is equipped with a quick-change chuck for holding the different size socket wrenches. This machine equipped with spade handle, side handle and 15 feet of electric cable, sells at \$103.





## The BIG Message of the Acme Franchise

We consider it worth money to dealers to tell them that the right time for investigating the Acme proposition is **NOW!** For now the Acme Flyer, a long-life, high-speed truck, is solving the light delivery situation to the **DEALER'S PROFIT!** *National Prosperity is Yours, Too, with Acme.*

The biggest need of transportation has been met by the Acme Flyer. And the great need of the dealer for bigger profit at practically the same overhead and selling effort is met by the Acme Line. National prosperity has come back, bigger than ever. The Acme Franchise is waiting for the dealer who means to make **NOW** the big word of his 1925 sales campaign.

Do you know the character of the Acme Franchise, by the way? It is a document of co-operation between Acme and the dealer that usually makes an association with the Acme Motor Truck Company long, friendly and profitable.

Write us—**NOW**—and learn more about our proposition to you. You will find it better than you believed possible.

**ACME MOTOR TRUCK COMPANY**

608 MITCHELL STREET

CADILLAC, MICHIGAN

*the* **NEW**

# ACME Flyer

Nine Other Acme Models for Every



Trade-Mark Registered

Type of Industrial Transportation

U. S. and Other Countries

## "Time" Sales Methods Important

(Continued from page 16)

termining this important part of the time sale plan.

The fourth method of calculating interest, which in reality is merely a combination of two of those previously presented, is to make all the notes including interest exactly equal, but instead of calculating the amount as in the first method or using the unfair \$180 figure, the smaller and correct figure of \$120 is divided into fifteen parts, each added to the base value of \$200.

This practice divides the risk of loss in repossession of the truck equally between dealer and purchaser—at least insofar as this part of the problem is concerned—and makes the entire transaction easily remembered.

And it is often no easy matter to keep the exact amounts of notes in mind, particularly when the totals instead of being the even figures we have taken for illustration are fractional amounts due to the initial price being an odd figure, but whatever the figures the methods of calculation are the same and the amounts can be determined by the purchaser in the manner outlined above.

### Finance Charges

Finance companies often find it necessary to make an extra charge, usually called "finance charge," to cover the cost of handling the account. This amount pays for the cost of handling the account as a matter of bookkeeping, collecting, recording, etc.

It seems that in the past truck purchaser have been inclined to look upon the finance charge as an amount which they should not feel called upon to pay. The writer feels that this has been due more to misunderstanding between the finance company and the purchaser than to anything else, for it is often difficult to explain the complicated operations of banking practice to the purchaser. Yet this charge is entirely legitimate provided, of course, that the figure is not excessive.

### Insurance Charges

As mentioned before, the dealer must naturally protect himself against loss due to damage or accident to the truck itself during the "time" payment period. For this reason adequate insurance must be carried, either by the purchaser or preferably by the dealer, since he is in a better position to know insurance requirements. On the other hand, the purchaser need feel that any advantage will be taken of him in case of accident, for insurance companies always clearly define the joint interests of dealer and purchaser before paying any claim.

Another point where the purchaser may gain in having the dealer carry the insurance, is that unless he is operating a fairly large fleet of trucks the dealer can usually secure the necessary insurance at a lower rate, due to the larger amount of business handled and the fact that his business standing is established with the insurance company.

Usually insurance is charged as a separate item and is paid for on a partial payment basis along with the chassis, but in some instances the dealer must pay the insurance company in full at the time the sale is made, hence he is rightfully entitled to ask the buyer to include this amount in the initial payment.

### Who Owns the Truck During the "Time" Payment Period?

The question of title or ownership of the motor truck involved in a "time" sale is often a puzzling one, not only to the purchaser but to the dealer as well. Under ordinary conditions title to property does not pass until it is paid for in full, but certain states have enacted special conditional sales laws which very clearly protect the interests of both dealer and purchaser at all times. In other states the legal requirements are still somewhat confused.

For these reasons the dealer, and oftentimes the purchaser, should feel free to call upon competent legal advice applicable within the territory wherein the sale is made.

It is obviously impossible to consider the various legal requirements at this time, but the writer knows that unless both parties clearly understand the restrictions under which sales of this kind are made, there is likely to be no little dissatisfaction should any trouble arise during the time that the truck is being bought.

A clear understanding of the rights of dealer and purchaser undoubtedly goes a long way towards not only mutual satisfaction, but also towards an understanding of the difficulties in securing state operating licenses and other details coming under the jurisdiction of the state laws themselves.

### Taxes, Freight, Extras, Etc.

In most every sale there are certain extras, such as taxes, freight, minor equipment, etc., to be included in the purchase price. This is also true when a truck is bought complete with body. Some dealers in determining the amount of the initial payment merely add these extras to the basic truck price and then take a given percentage of the grand total for the amount of the initial payment. Others insist upon receiving the total included in extras as a direct part of the initial payment, and add their cost to the original amount of the "down" payment, were they not included.

Whatever may be the practice in disposing of these items the truck purchaser should thoroughly understand how they are disposed of when he concludes the transaction. The exact procedure to be followed is determined by the nature of the item itself—whether or not it must be paid for by the dealer in cash (in which case the purchaser would be expected to pay for it as a part of the "down" payment), or whether the dealer is in a position to extend the same credit on the extras as on the truck itself.

### Size of Notes and Length of "Time" Payment Period

Obviously, the sooner the truck is paid for the sooner will the purchaser begin to make money and the dealer receive the capital which he has in reality loaned the

purchaser. For this reason the "time" payment period should be as short as possible, but on the other hand there is a fundamental principle too often overlooked by dealers and finance companies when concluding a "time" sale.

Unless the purchaser is in a position to receive payment for the operation of the truck at a greater rate than the amount required for its operation and the payment of the notes themselves, trouble is eventually bound to ensue.

Under present-day competitive operating conditions, purchasers are often placed in a very disadvantageous position, usually several months after the truck has been placed in operation.

The writer feels that there is a great deal yet to be done in helping the purchaser pay for his truck. This may seem like placing too much of the burden upon the dealer, but on the other hand the dealer's success depends upon his receiving payment, and the purchaser's success depends upon his ability to make money with his truck. Both conditions involve business considerations, and the dealer is oftentimes more familiar with business practices, together with truck operating costs, than the purchaser.

This is not always true, for many truck fleet owners are very familiar with costs involved in motor vehicle operation, but they, if they purchase trucks on a "time" sales basis, are seldom placed in an uncompromising position due chiefly to their knowledge of business practice and operating costs.

But the notes covering monthly payments must not be too small, for if they are they bring into consideration another factor which must not be overlooked. This also is fundamental business principle.

If the rate of depreciation of the truck is greater than the amounts paid in on it at any particular time during the conditional sale period, the dealer may be placed at a disadvantage since if he must replevin the truck it is extremely difficult for him to resell it except at a net loss, even though he may seemingly have received more money from the initial purchaser than the value of the truck itself.

Fundamentally speaking, the rate of depreciation must always be less than the rate at which payment is made, so that the purchaser's interest in the unit will be continuous since he will be receiving something of greater intrinsic value than the amounts which he has paid represent.

The principle involved in the depreciation rate has an important bearing upon the dealer's standing with the finance company or his bank, for his assets on credit to the customer always should be equal to or greater than the actual amounts themselves which are outstanding.

In such cases should repossession of the vehicle be necessary at any time, he is always able to resell the unit without loss.

Dealer good will and customer confidence are based upon mutual understanding. By presenting the facts to the purchaser and being certain that he understands them, the dealer can assure himself of continuous satisfaction in selling trucks on time.



# THE COMMERCIAL CAR JOURNAL

Entered as second-class matter at the Post Office at Philadelphia, Pa.  
under the act of March 3, 1879

VOL. XXVIII PHILADELPHIA, FEB. 15, 1925

No. 6

## EDITORIAL DEPARTMENT

ALBERT G. METZ, Managing Editor

MARTIN J. KOITZSCH, Associate Editor

H. LIONEL WILLIAMS, Field Editor

DONALD BLANCHARD, Detroit

## BUSINESS DEPARTMENT

GEORGE H. DUCK, Business Manager Commercial Car Journal

GEORGE D. ROBERTS, Advertising Manager Chilton Publications

Published the 15th of each month by the

## CHILTON COMPANY

Chestnut and 56th Streets

Philadelphia, U. S. A.

C. A. MUSSELMAN, President J. S. HILDRETH, Vice-Pres. and Director of Sales  
A. H. VAUX, Sec'y and Asst. Treas. H. J. REDFIELD, Treasurer

Owned by United Publishers Corporation, 239 West 39th Street, New York;  
CHARLES G. PHILLIPS, President; A. C. PEARSON, Vice-President;  
FRITZ J. FRANK, Treasurer; H. J. REDFIELD, Secretary.

Telephone.....Sherwood 1424, Philadelphia

## OFFICES

New York—239 W. 39th St., Phone Pennsylvania 0080

Chicago—5 S. Wabash Ave., Phone Central 7045

Detroit—7338 Woodward Ave., Phone Empire 4890

Cleveland—538-540 Guardian Bldg., Phone Main 6432

## SUBSCRIPTION RATES

United States and Possessions	\$2.00
Canada	3.00
Foreign	4.00

Make Checks, Money Orders, etc., payable to Chilton Company

MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS

## TABLE OF CONTENTS

Advertisers' Index	PAGE 128
Bus Table	42
Coming Events	28
Commercial Car Specifications	33
Editorials	27
News of the Trade, Including Personals	28
Replacement Table	45

## SPECIAL ARTICLES

When National Accounts Are No Accounts	9
Beautiful But Disappointing	11
Vocational Plan Best in Selling Trucks	12
Getting and Giving Service	14
Is the Balloon Tire the Coming Thing on Trucks?	15
Selling Trucks to Horse Owners	16
Changing Annoyance Into Profit	17
Conducting a Truck Selling Business for Profit	18
Pictorial Review	19
Truck Owners Furnish Advertising Theme	22
C. C. J. Shop Ideas	24



Ford Type, Nickel-Plated

# The New Price \$12<sup>00</sup>

The new price of the Ohmer Hub-Odometer for Ford cars is \$12. This announcement should prove highly interesting to operators of Rent-A-Ford Stations and owners of Ford Fleets.

## All Features Retained

This is the same Ohmer Hub-Odometer that formerly sold for \$15. Increased production and widespread acceptance by fleet owners has made this price reduction possible.

This Ohmer Hub-Odometer is nickel-plated, very attractive in appearance, sturdy of construction—and matches the other hub caps perfectly. The figures *always* read right side up. It is trouble-free in operation. It keeps an accurate account of mileage and furnishes a positive check on every car.

## Revised Price List of Ohmer Hub-Odometers

Nickel-plated type for Ford passenger cars	\$12.00
Plain type for Ford trucks	12.00
Nickel-plated type for Chevrolet, Overland, Star cars	15.00
Truck type for Chevrolet, Overland, Star trucks	15.00
Either type for any other cars or trucks	20.00

## Write for Facts

Ohmer Hub-Odometers are satisfactory for all types of trucks and cars.

Just sign and mail the coupon at once. We will point out how the Ohmer Hub-Odometer will both make and save money for you.

*The Ohmer Hub-Odometer is backed by the Ohmer Fare Register Company—makers of accurate recording devices for 26 years and with service stations everywhere.*

## OHMER FARE REGISTER COMPANY

DEPT. C DAYTON, OHIO, U. S. A.

# OHMER HUB ODOMETER

### Ohmer Fare Register Co.

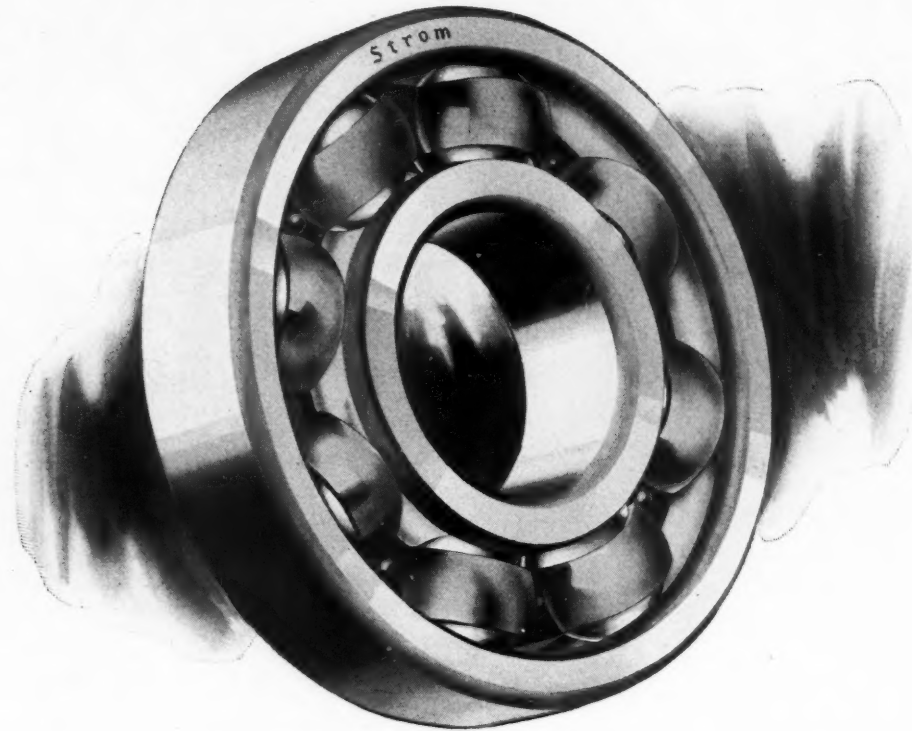
Dept. C Dayton, Ohio

Gentlemen: Please send me full descriptive matter and prices of the new Ohmer Hub-Odometer. This does not obligate me in any way.

Name .....

Address .....

# The New Super-Strom



**A super-ball bearing of exceptional accuracy and load-carrying capacity**

**U**PON request we will send you a booklet describing the new Super-Strom ball bearing—giving dimensions and load-carrying capacities. It is important data, because this new ball bearing is a *development of real importance.*

It is of the deep-groove type—without filling slots, offering 17% to 38% increased load-carrying capacity, by use of more or larger balls, according to size of bearing.

Minimum eccentricities and tolerances—utmost dimensional accuracy. Sturdy retainers, accurately pressed, rigidly riveted, form broad, spherical ball pockets. Special analysis steel—of exceptional durability by improved forging and heat treating methods.

Now available in quantity production—and a point to remember is that our engineers will be glad to assist in solving your bearing problems.

*Tear off lower part of this advertisement and pin it to your letterhead. We'll mail at once this important booklet on the new Super-Strom ball bearing.*

**Strom**  
BALL BEARINGS



STROM BALL BEARING MFG. CO., 4542 PALMER STREET, CHICAGO, ILLINOIS

Name.....Position.....